DECEMBER 21, 1959

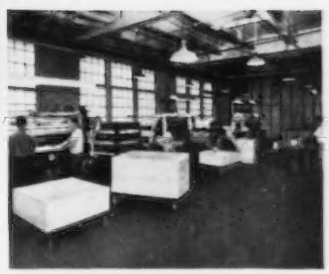
PAPER TRADE JOURNAL

British Tissue Machine Aims at Ultra High Speeds

Maintenance Series Continues with Rules for Ring Grinders

Paper Machine Drainage Problems Explored by German Scientists

1 PROGRESSIVE ORGANIZATION FOR MARKETING ALL JOB LOTS!



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- Machine Coated
- Writing
- English Finish
- Mimeo
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- Sulphite Converting
- Bleached Sulphate
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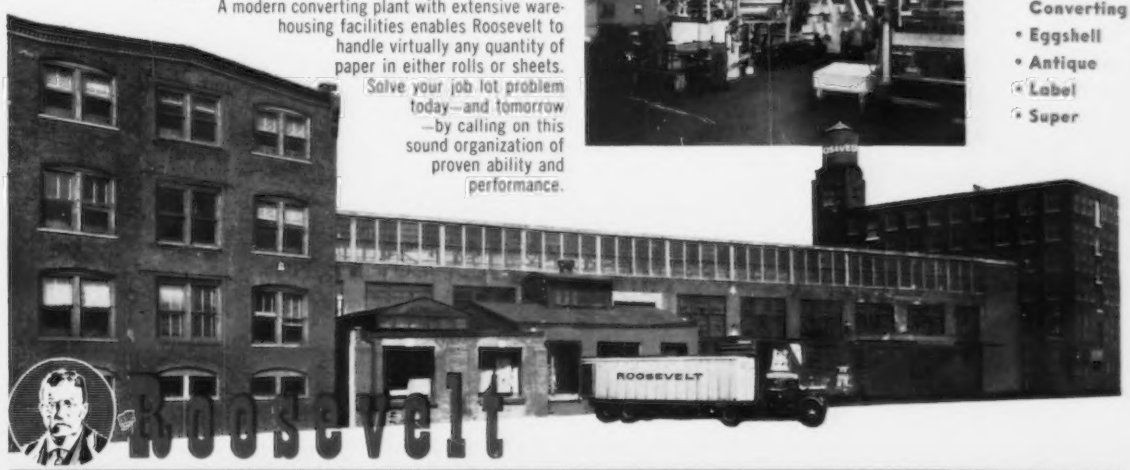

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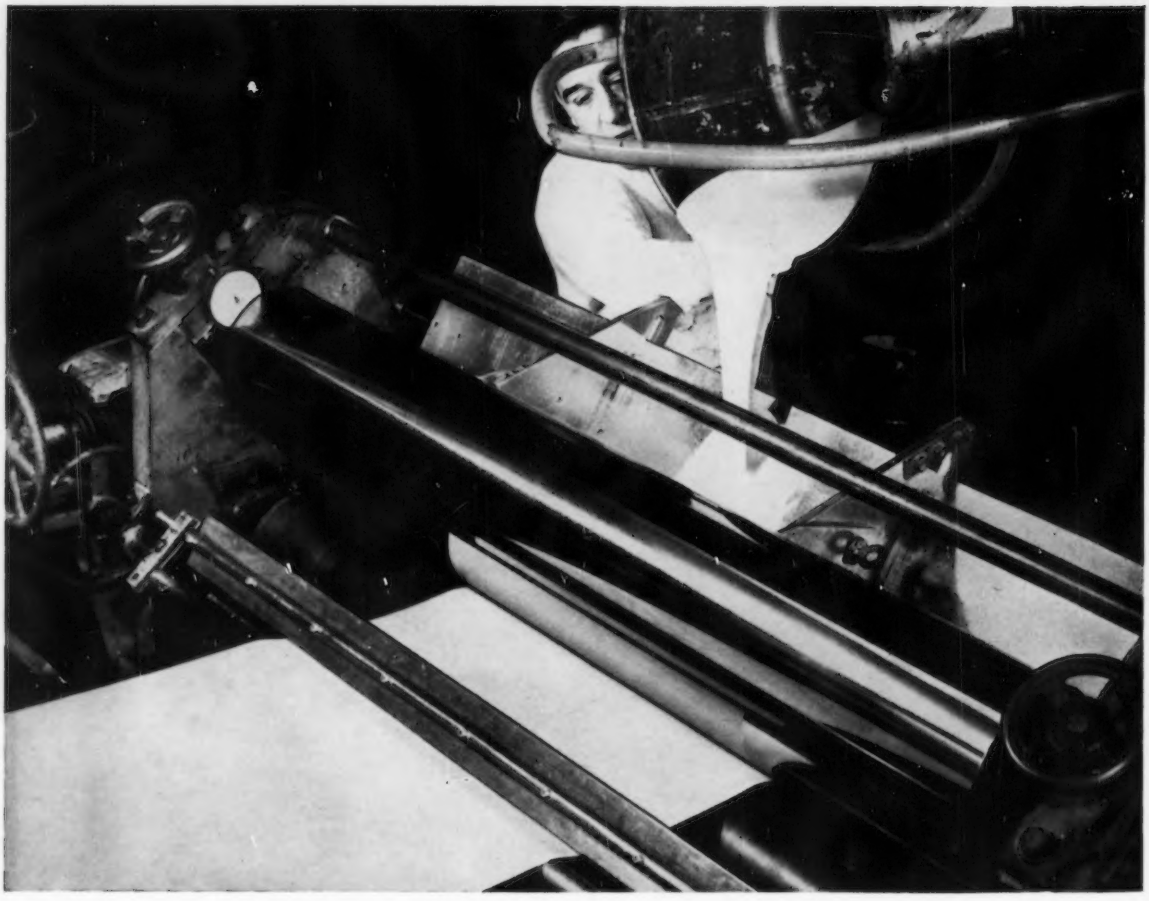

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The big pay-off in paper comes when a manufacturer supplies a specific need with a new and superior product. A recent example: plasticized printing paper, a combination of paper fibers, and a CHEMIGUM LATEX by Goodyear. Perhaps you're working on a development of comparable importance right now. Could be a paper with exceptional wet-strength – or a unique texture –or unprecedented fold qualities.

Whatever your project, it will pay you substantial dividends to explore the advantages of Goodyear's three basic latices: PLIOLITE LATEX (water dispersion of styrene-butadiene rubber), PLIOVIC LATEX (water dispersion of vinyl copolymer resin), and–of course –CHEMIGUM LATEX (water dispersion of nitrile rubber). All three are available in a broad range of monomer ratios, particle sizes and types of stabilization. They can be used alone–or in combination with each other–or as modifiers of your present materials.

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You can also expect the finest in technical assistance when you specify a Goodyear latex. Contact your Goodyear Chemical Division Representative for all the facts. Or write for details–including latest *Tech Book Bulletins*–to Goodyear, Chemical Division, Dept. L-9427, Akron 16, Ohio.

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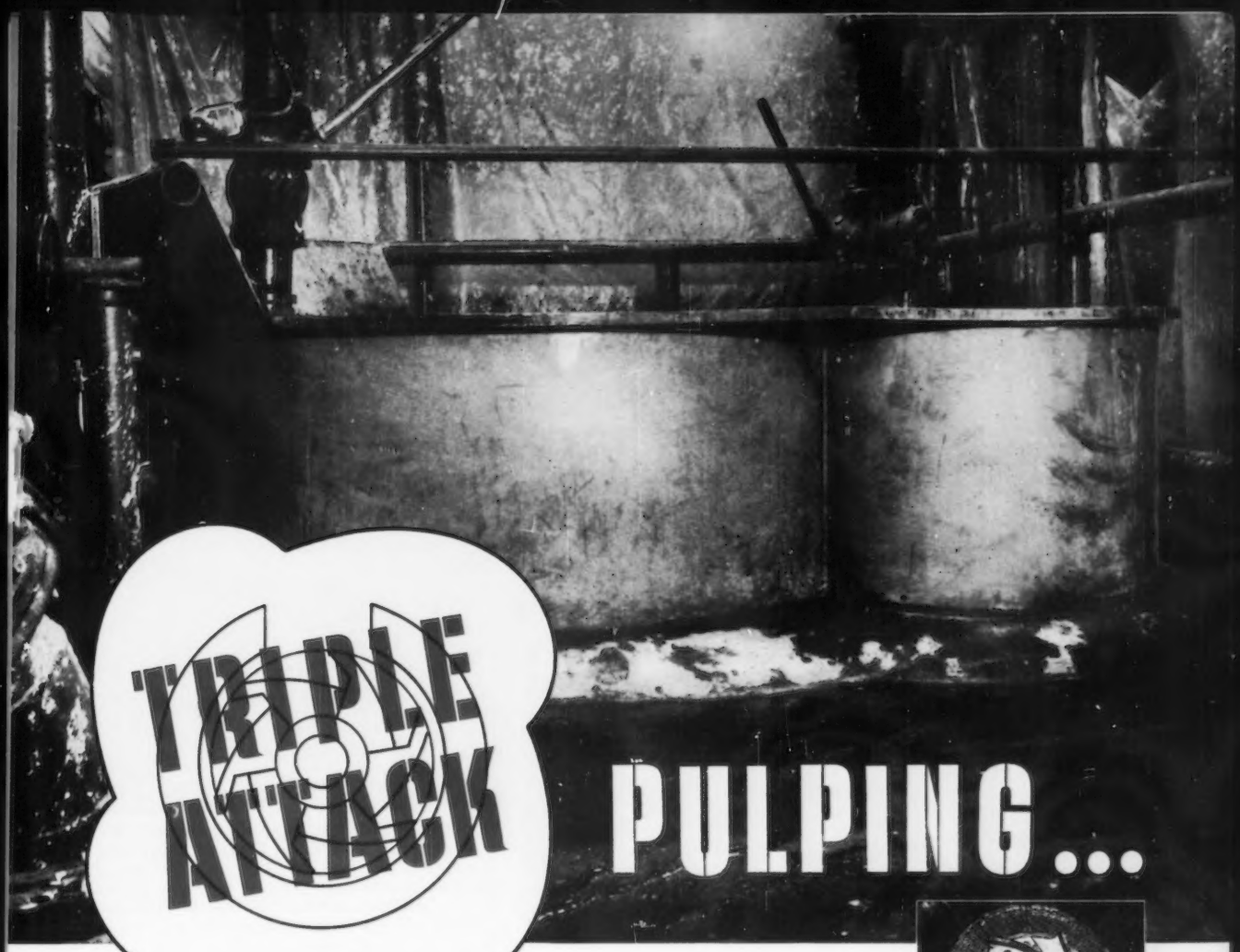

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what makes this new method so successful?

Triple Attack pulping is an advanced method, exclusive in the new Emerson Pulper, that *multiplies the number of defibering cycles which take place within a given period.* Thus, it guarantees maximum defibering on all types of stock — in 20 to 30 minutes — wet strength slightly longer. It also offers complete pulping at 8 to 12% consistency, uniform mixing, fast charging and dumping, and extremely low power consumption at full or partial capacity.

The success of the Emerson Triple Attack Pulper lies in its advanced lobe shape, tapering tub walls, conical bottom and effective impellor action.

Pulp fibers are subjected to a relentless triple attack by (1) the violent agitation of the impellor, by (2) the force and friction of fiber contact with the specially designed tub walls, and by (3) the vigorous hydraulic defibering action caused when on-coming stock streams from the impellor hit the flow of stock returned by the tub walls.

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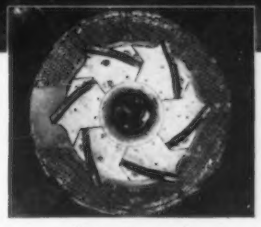
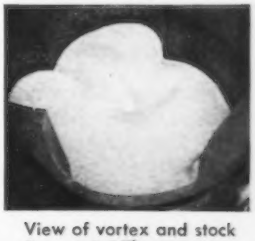
For further information, please write to The Emerson Manufacturing Co., Division of John W. Bolton & Sons, Inc., Lawrence, Massachusetts.



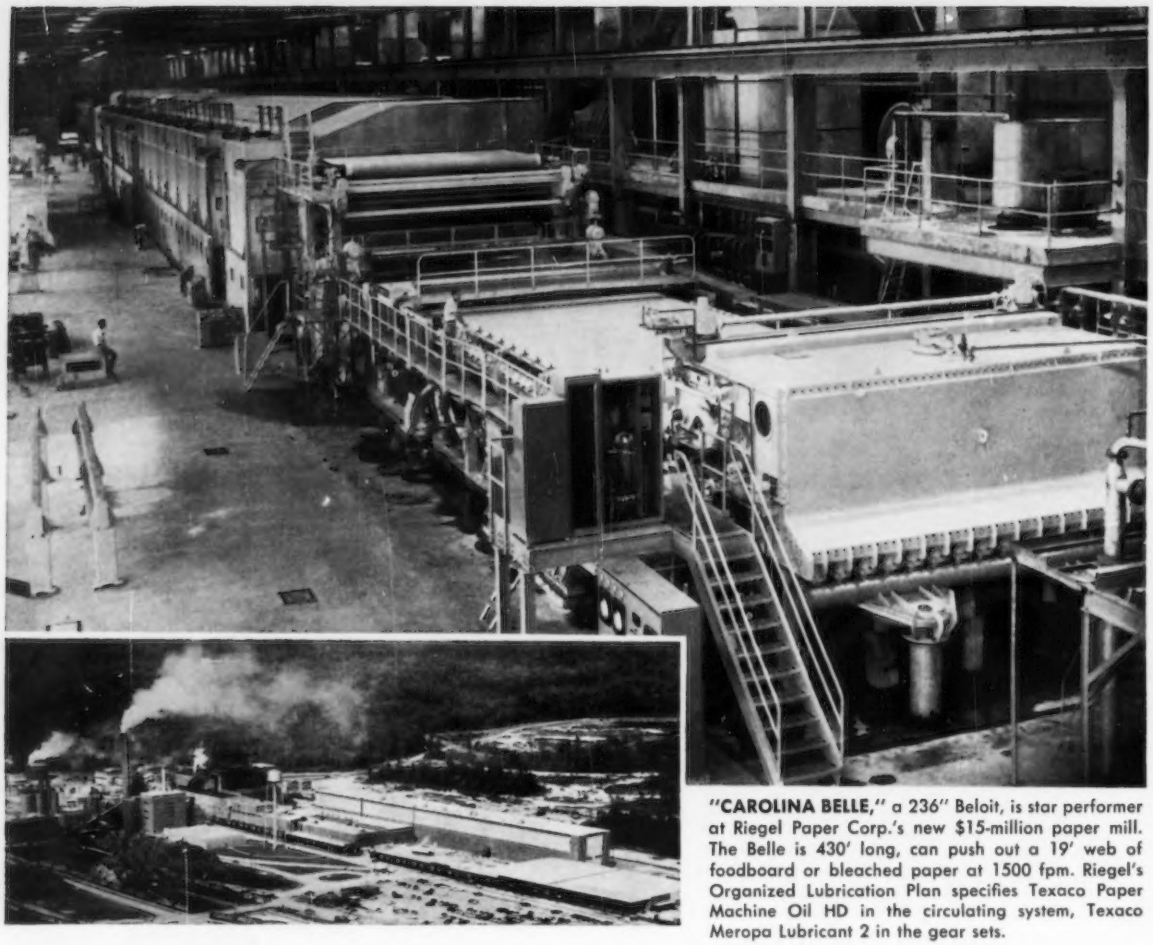
The rotor and extraction plate



View of vortex and stock flow at 8-9% consistency

Emerson TRIPLE ATTACK PULPER

A product of BOLTON EMERSON



"CAROLINA BELLE," a 236" Beloit, is star performer at Riegel Paper Corp.'s new $15-million paper mill. The Belle is 430' long, can push out a 19' web of foodboard or bleached paper at 1500 fpm. Riegel's Organized Lubrication Plan specifies Texaco Paper Machine Oil HD in the circulating system, Texaco Meropa Lubricant 2 in the gear sets.

Riegel specifies Texaco Organized Lubrication for new Carolina paper mill

Only 7 types of lubricants handle over 150 applications in ultramodern mill featuring on-machine coating

Riegel Paper Corporation's new $15,000,000 North Carolina paper mill is a prime example of advanced papermaking methods and equipment. "Air-knife" on-machine coating, extra-long drying runs, automatic streamflow recorders, and many other ultramodern features all contribute to papermaking efficiency—*and add up to 150 different lubricant* applications. Nevertheless, a Texaco Organized Lubrication Plan does the whole job with only 7 different types of Texaco lubricants!

Like Riegel, more and more paper mills are installing Texaco Organized Lubrication Plans—and for one very sound reason: this modern approach assures the most thorough protection with the fewest possible lubricants. The primary object of the Plan they prepare for you is to reduce your costs of production and maintenance.

The result: completely dependable lubrication plus all the advantages of low inventory; simplified application procedures; easier handling and storage; less paperwork in ordering.

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REMEMBER THESE DATES

January 21. Western Michigan University Fourth Annual Pulp and Paper Conference, Kalamazoo, Mich.

January 25-28. Plant Maintenance and Engineering Show, Convention Hall, Philadelphia, Pa.

January 26-29. Technical Section, Canadian Pulp and Paper Ass'n., Queen Elizabeth Hotel, Montreal. Note meeting starts Tuesday.

February 22-25. Paper Week in New York.

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went through the mill

to earn its new name...

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Some months ago, Dewey and Almy research perfected a remarkable new paper coating latex binding agent. It looked so good we put it right on the market as DAREX LATEX C.

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Here is what this remarkable new latex job-proved that it can do for you:

flotrol C permits full control of viscosity and color pattern . . . gives lower viscosity for smoother, glossier paper finish.

flotrol C produces a superior printing surface even when your formula has a high solids content.

flotrol C is compatible with a variety of coating formulations including casein, starch, soya protein—may be used with any type coater.

flotrol C has low foaming characteristics and an unusual degree of mechanical stability.

flotrol C is chemically stable to polyvalent ions, calcium and a wide pH range.

flotrol C makes possible faster coating, faster drying with less heat . . . more production per working day

Ask your Dewey and Almy Salesman for full details. Or write Organic Chemical Sales.

W. R. GRACE & CO.
DEWEY AND ALMY CHEMICAL DIVISION
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The Labors of Hercules

Better Papermaking Chemicals
Better Technical Assistance

***Mythology**—Of all twelve labors that Hercules was called on to perform to secure his reputation for strength in Greek mythology, one of the most pleasant was probably the securing of Hippolyte's magnificent Girdle. The King of Argos sent Hercules to take it from Hippolyte, the Queen of the Amazons. Despite the interference of the Goddess Juno, Hercules added another victory to his record during the encounter.*

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PP59-7

Paper Makers Chemical Department

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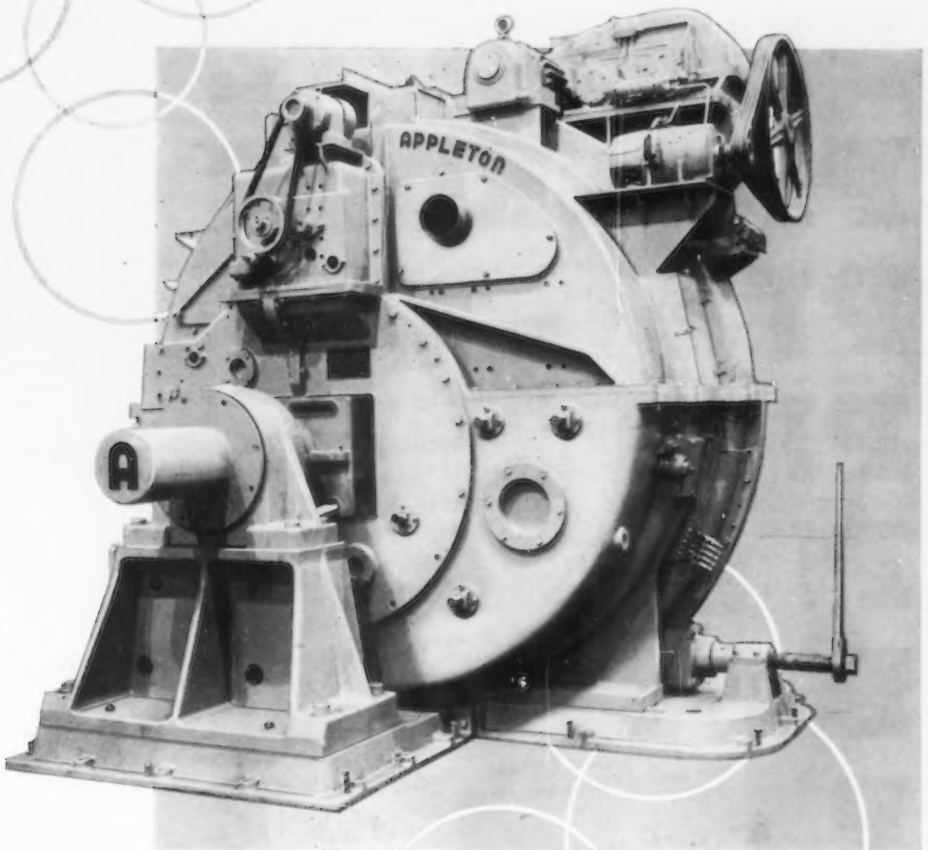
— the original builders of Roberts grinders and the oldest hand in the business presents, reasonably enough, the industry's . . . .

NEWEST RING-TYPE GRINDER



NEW

The APPLETON grinder features *new* features and heavier components . . . *delivers* more horsepower for greater production . . . is especially adaptable to automatic feeding . . . has conclusively proved its superiority in mill operation.

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... are compounded for your particular coating applications

Because every coating operation has its own peculiar set of requirements, every PRESKOTE roll cover is individually designed to do the coating job under your operating conditions. PRESKOTE Rolls offer these important points for more efficient, dependable service:

1 *They can be easily ground and polished.*
2 *They have an exceptionally smooth surface*
3 *They have good resilience, excellent recovery and minimize tail marking.*

STOWE-WOODWARD, INC.

Ask the man from S-W . . .

. . . about the advantages of specifying PRESKOTE covers for your coating rolls. He'll demonstrate how PRESKOTE Rolls are unusually smooth and free of imperfections that might cause trouble during paper coating operations.

PRESKOTE coverings can be furnished in the hardness you require. PRESKOTE covers can be operated safely at temperatures up to 150°F. and are resistant to coating ingredients that are in use today.

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Trends

Profit Outlook Better for 1960

Profits in our industry in 1959 did not keep pace with the new peaks achieved in output and consumption, states the Value Line Investment Survey. Profit margins continued the steady deterioration of the past decade. With output running closer to capacity the mills are in a position to institute much needed price increases to compensate for the extensive advances in operating costs in recent years, predicts this firm of investment advisers.

Urges Free Newsprint For Neutral Nations

Surplus newsprint should be made available to publishers in uncommitted nations to expose Communism and print the true picture of the advantages of freedom, A. B. Meyer, president, Bowater Paper Co., recently stated. He pointed out that the Soviet Union and Red China are making gifts and cheap sales of newsprint to paper-scarce nations such as Pakistan, India, Thailand and Malaya to "get a favorable press."

Folding Boxes Again Move Ahead

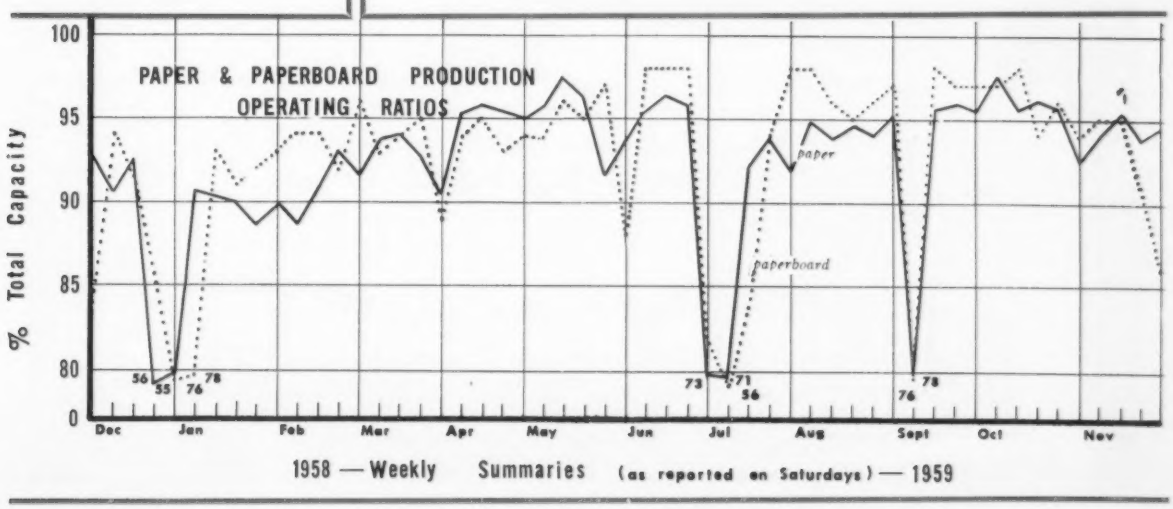
Shipments of folding cartons moved ahead again during November after lagging slightly the previous month, according to Folding Paper Box Ass'n. The dollar volume of shipments during the month topped November of 1958 by 4.2% and tonnage was up 3.6%. The year-to-date is 3.8% ahead of 1958 in dollars and 2.5% in tonnage.

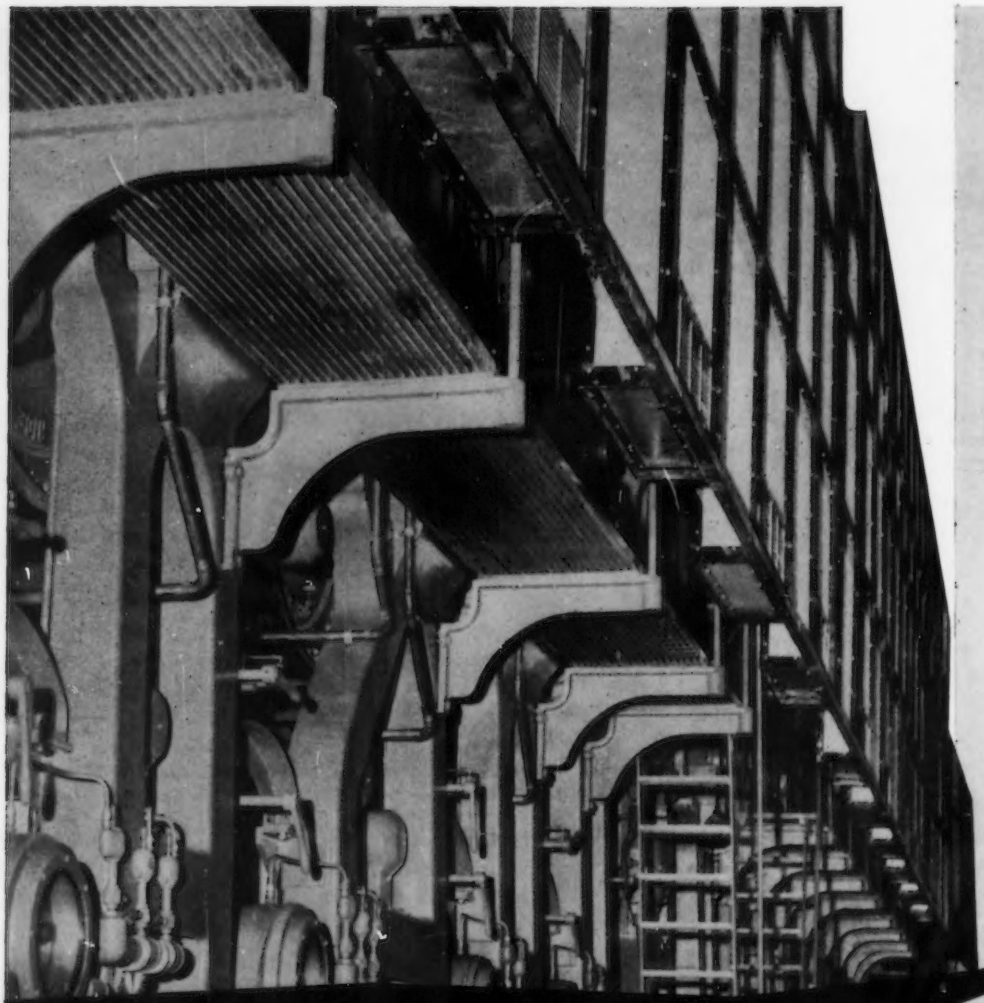
Building Products Outlook Bright for '60

Although building material producers have been pre-conditioned to expect up to 15% fewer housing starts in 1960 than in 1959, prospects for an industry sales volume at least equalling 1959 results continue bright, according to E. J. O'Leary, chairman and president, Ruberoid Co. One major reason for this encouraging outlook is the constantly growing repair and renovation market, he stated.

Is a Big Market Being Ignored

Are our kraft paper and board manufacturers aware of the booming demand for their products in Western Europe? Do they not know that converters in these countries are having trouble getting deliveries or are producers ignoring this?





BIG, FAST and TYPICAL.....

Typical of Rice Barton papermaking machines is that built-in extra quality — that gives you all you bargained for, and more — much more.

RICE BARTON CORPORATION

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Paper Machinery Builders Since 1837

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PAPER TRADE JOURNAL

WEEK OF DECEMBER 21, 1959

Rayonier Announces New Sodium Base Process for Hoquiam

Rayonier is going to convert its Grays Harbor sulphite mill at Hoquiam, Wash., from ammonium-base to a newly patented sodium-base process at an estimated cost of $7,500,000.

Scheduled to be in operation in 1961, the process is radically new to U.S. mills. Other sodium-base sulphite processes have been developed in recent years, but this will probably be the first commercial installation in operation in North America. Engineering and construction of the project will be directed by the company's Northwest Central Engineering division at Hoquiam.

Rayoniers research division has been working on the new pulping operation for many years. Key to the sodium-base process is its chemical and heat recovery features which will add economies to the pulp production, abatement of waste chemicals and a "high order" of production flexibility said to be unequalled by use of other bases.

An important feature of the sodium-base sulphite process is that a minimum of 85 per cent of the pulping chemicals will be recovered initially, and it is expected that an even greater percentage will be reclaimed for re-use after the new operation has cleared its "breaking-in" phases.

This leaves only 15 per cent of the sulphite liquor residue to be disposed of in the mill's effluent. When necessary, this fraction will first be discharged into the Rennie Island settling basin and lagoon and later discharged into the Chehalis River under controlled conditions. After completion of the sodium-base recovery project, the company plans to continue the use of its successful Rennie Island lagooning system. This represents an extra safeguard that will be available during the summer periods when low river flows are normally experienced.

The process will handle the bulk of the sulphite spent liquor from the pulping of 500 tons per day of finished pulp by chemical uses.

The new sodium-base process will use commercially available equipment not presently used in the pulp industry but commonly used in many applications in the chemical industry.

Last month Rayonier announced a $10,000,000 program in conjunction with the Hammermill Paper Co. for expanding the paper-making capacity of the Grays Harbor Paper Co., jointly owned by the two companies on the same site.

NEW PROCESS DESCRIBED

The cooking liquor will be a mixture of sodium bisulphite and sulphurous acid as compared with a mixture of ammonium bisulphite and sulphurous acid currently used.

Spent liquor will be recovered from the present blowpit washing system. An evaluation of data indicates that blowpit washing can be carried out successfully at a high level of efficiency with regard to water usage and solids recovery. In fact, exceptionally high solids recovery was accomplished at the Shelton Division prior to its shutdown using a procedure similar to that contemplated for this process.

The spent liquor from the digesters will first be steam stripped to recover sulphur dioxide following which the stripped waste liquor will be neutralized with caustic or soda-ash. After a filtration stage the neutralized liquor will be concentrated in multiple effect evaporators prior to burning in a conventional recovery boiler. The stack gas from the boiler will pass through an electrostatic precipitator to remove a major portion of the dust particles entrained in the gas flow.

The inorganic solids in the spent liquor will be reduced to a smelt consisting essentially of sodium sulphide and sodium carbonate. This smelt will be fed as a slurry to an extraction column. Differences in the solubility of sodium sulphide and sodium carbonate in a solution of the two materials make it possible to leach the sodium sulphide from the smelt slurry and recover sodium carbonate in crystal form from the base of the extraction column.

The saturated solution of sodium sulphide and sodium carbonate remaining after separation of the sodium carbonate crystals will be fed to a carbonation unit where the sodium sulphide will be reacted stepwise with carbon dioxide to produce additional quantities of sodium carbonate. The sodium carbonate solution from the carbonation step plus the sodium carbonate crystals recovered from the extraction column are used either to produce cooking liquor or as material to neutralize the unconcentrated sulphite spent liquor. The hydrogen sulphide produced in the carbonation step will be converted to molten sulphur which in turn will be burned in conventional sulphur burners to make sulphur dioxide for cooking liquor.

Season's Greetings

to our readers

Field Enterprises Acquires Manistique Pulp & Paper Co.

Field Enterprises, Inc., has arranged to acquire the capital stock of the Manistique Pulp & Paper Co. from the Trenton Times newspapers and the Kerney Interests, Marshall Field, Jr., president of Field Enterprises, announced. Field Enterprises, Inc., owns the Chicago Sun-Times, the Chicago Daily News, the World Book Encyclopedia, Childcraft and the Sun-Times and Daily News buildings. Marshall Field, Jr., is president and publisher of the Chicago Sun-Times and the Chicago Daily News.

The Manistique Pulp & Paper Co. has been supplying the Chicago Sun-Times with about a third of the mill's 30,000 ton annual production. Provision will be made to supply the mill's other customers of long standing and to serve them as in the past, despite probable increase in the use of the Manistique products by Field Enterprises.

Wilbur C. Munnecke, a vice president of Field Enterprises, said that Manistique has been working several years toward perfection of a flotation process to provide pulp for newsprint by using deinked waste paper. Special equipment for this, produced by Denver Equipment Co. and licensed to Field Enterprises exclusively, has been installed at the mill.

The Manistique Pulp & Paper Co. was sold to the Kerney interests January 1, 1952, by Mead Corp. which acquired it from Minneapolis newspaper interests. The plant was built in 1920.

Unions Turn Down Hudson Offer in Strike

All seven striking locals have turned down Hudson Pulp and Paper Corp.'s "last offer" for a settlement of the strike which closed the Palatka, Fla., mill November 7.

Three of the union locals turned down the offer December 8. The four others refused it December 7. The vote against accepting was made by about 95 per cent of the workers voting, a union spokesman stated.

The striking locals—members of the United Papermakers and Paperworkers Union, and the International Brotherhood of Pulp, Sulphite and Paper Mill Workers, represent about 1,200 workers. The plant employs about 1,950 persons.

The company offer included a package proposal with wage increases of three per cent, with a minimum of seven cents an hour retroactive to June 1, and four per cent, with a minimum of eight cents beginning June 1, 1960; a $5,000 major medical insurance program in addition to other health insurance; and some individual rate adjustments and contract language changes.

The main point at issue in the strike is the right of unions to negotiate for the size of work crews and the description of job duties performed by certain classes of workers.

The union insists it has this right in order to safeguard the job security and safety of its members. The company says this would infringe on its right to operate the mill and seriously hinder its ability to compete in the paper market.

The controversy began last March when Hudson made a number of layoffs in a drastic reduction of operating costs. A wildcat strike at the plant occurred March 29 and ended April 3 when it was agreed that the arbitration machinery would be speeded up to settle the question. Arbitration decided in favor of the company, moving the unions to seek changes in the contract this fall.

Paper and Paper Board Production

The American Paper and Pulp Association reported the ratio of the United States paper production to mill capacity for the week ending December 5, 1959, at 94.5 per cent, compared with 93.7 per cent, revised for the preceding week. The ratio was 91.6 per cent for the corresponding week a year ago.

The National Paperboard Association reported the paperboard production ratio for the week ending December 5, 1959, at 86 per cent, compared with 91 per cent for the preceding week and 84 per cent for the corresponding week a year ago.

(Detailed statistics on page 46)

Two Newsprint Machines Ordered by Moscow Agency

It was reported by Reuters and other British news services and confirmed in New York at press time that the Parsons & Whittemore/Lyddon Organization has closed a contract with Techmashimport, Moscow, for two high-speed newsprint machines to be manufactured by the Black-Clawson Co., for delivery to Russia in 1962 and 1963. The machines and auxiliary equipment will be manufactured substantially at the foundry and machine works of Black-Clawson International in Newport, England.

The value of the order exceeds £4,300,000 ($12,000,000) and was obtained for Black-Clawson against the heaviest competition in recent years from other major paper machine builders in the United States, Germany, England, Sweden, and Finland.

Identical machines, they will be the largest in Russia—each, 284 inches wide. Designed mechanically for speeds up to 3000 f.p.m., they will operate initially in the 2000-2500 f.p.m. range, producing 330 metric tons per day of standard newsprint, trimming 265 inches.

Wenner-Gren Pulp Mill Again Rumored for B. C.

Rumors are again prevalent for construction of a large pulp mill in the Peace River interior of British Columbia by the Swedish Wenner-Gren industrial interests.

Wausau Paper Mills Installing New Boiler

Work has been started on the installation of a new shop assembled steam boiler unit at Wausau Paper Mills Co., Brokaw, Wis. The new boiler will replace one 20-year-old and two 40-year-old boilers now in operation.

The capacity of the new boiler is 50,000 pounds of steam per hour. It is oil fired and equipped with provisions for conversion to natural gas when available.

Correction

In the footnote on page 33 of our November 23 issue the address of Burnham and Co. was incorrectly given. The correct address is Burnham and Co., 15 Broad Street, New York 5, N. Y.

$1000 CHECK is presented to Alan J. Frick (Walt), winner of the recent Text Paper Contest, by M. C. Dobrow, executive secretary, Writing Paper Mfrs. Ass'n.

Frick Wins Text Paper Contest

Alan J. Frick, a salesman for 10 years for the Genesee Valley Paper Co., New York, has just been selected as the winner of the $1000 check in the recent Text Paper Contest sponsored by 14 manufacturers of text papers in the United States.

His check was presented to him by M. C. Dobrow, executive secretary of the Writing Paper Manufacturers Ass'n., at the association's offices in New York. The contest, designed to promote the sale of text papers, was open to employees of all fine paper merchant organizations and was limited to the best slogan or phrase, 10 words or less, which described the uses and advantages of text papers.

Mr. Frick's winning phrase, "Text papers—for texture, color and a lasting impression," was selected from among more than 4,500 entries which came from all sections of the country as well as Hawaii and Canada. This was a phenomenal response, considering the relatively small number of eligible contestants. Contestants were permitted to submit more than one slogan—in Mr. Frick's case, he submitted four.

$1,000 Award Offered for Technical Paper on Lime

The National Lime Ass'n., Washington, D.C., has just announced the Victor J. Azbe Lime Award Contest. An award of $1,000 will be given annually for the best technical paper on lime — its manufacture, including plant or equipment design research on its chemical and physical properties, and methods of tests for evaluating its properties and quality.

Although lime is as old as recorded history, there is still much to be learned about this widely used, basic industrial chemical and building material.

The donor of this award, Victor J. Azbe, president of the Azbe Engineering Corp., Clayton, Mo., has been a consulting engineer specializing in lime manufacturing problems and plant design for forty years. It is his hope that this award will stimulate greater interest and more research on lime among chemists and engineers.

The first award will be made in the fall of 1960. All technical papers should be submitted by March, 1960, to the National Lime Ass'n., administrator of the contest.

Further details of the contest can be obtained from the National Lime Ass'n., 925 15th St., N.W., Washington 5, D. C.

Muskegon, Mich., Designated "Pulp Port"

The port of Muskegon, Mich., has been designated the dominant port on the eastern shore of Lake Michigan for wood pulp imports from Scandinavian countries. The designation is expected to double foreign tonnage into Muskegon port during the 1960 shipping season.

Gordon Judge, chairman of the traffic committee of the American Ass'n. of Wood Pulp Importers, announced Muskegon's new shipping role. Mr. Judge said the Green Bay, Wis., port will have a comparable role on the western shore of Lake Michigan.

Pulp & Paper Foundation Elects Officers

Charles S. Huestis of New York City, general manager for engineering and development of the Continental Can Co., was elected president of the Pulp and Paper Foundation, Inc., at the organization's annual meeting at North Carolina State College. He succeeds Sture G. Olsson of West Point, Va., president of the Chesapeake Corp. of Virginia, who served for the past two years as head of the foundation.

Other foundation officers elected were: C. E. Hartford, vice president and general manager of the Riegel Paper Corp. at Acme, who was elected vice president; L. L. Ray of North Carolina State College, secretary; and J. G. Vann, also of State College, treasurer.

The foundation, which was incorporated in 1955, reported that its income totals $280,780 and that a budget of $64,000 for the next year. has been approved.

Principal aim of the foundation is to strengthen teaching and research work in pulp and paper technology in North Carolina State College's School of Forestry.

BOARD OF DIRECTORS, Pulp and Paper Foundation, North Carolina State College: Seated—Almon Fairbrother, Champion Paper and Fibre Co., Canton, N. C.; Charles Hartford, Riegel Paper Corp., Acme, N. C.; Charles Huestis, Continental Can Co., New York (newly elected president of Foundation); Sture Olsson, Chesapeake Corp. of Virginia, West Point, Va. (retiring president of Foundation). Standing—Robert Vokes, Black-Clawson Co., Middletown, Ohio; Hugh Causey, Allied Chemical Corp., New York; Thomas Dunn, Union Bag-Camp Paper Corp., New York; John Long, Hercules Powder Company, Wilmington, Del.; Howard Hinman, International Paper Co., Pine Bluff, Ark.; Walter Morehouse, NOPCO Chemical Co., Newark, N. J.

PAPER PEOPLE

S. P. Hoopes

W. F. McGee

Finch, Pruyn Announces Appointments

Appointment of Samuel P. Hoopes as director of purchasing and William F. McGee as traffic manager at Finch, Pruyn and Co., Inc., Glens Falls, N. Y., manufacturer of printing and converting papers, has been announced.

Mr. Hoopes attended Glens Falls high school, Deerfield Academy and Dartmouth College. During World War II, he spent three years in the Navy. He has been employed by Finch, Pruyn since 1942 and served in the capacity of safety director for the past six years. In 1955 he was elected a director of the company.

Mr. McGee has been employed at the paper manufacturing firm since 1955 and has held positions in the finishing department office, in the tabulating department as assistant supervisor, and finally as procedures accountant. He attended Temple University in Philadelphia.

Stevens Joins Consolidated As Chief Plant Engineer

Consolidated Paper Co. has appointed John B. Stevens chief plant engineer over all plants, serving under R. D. Morse, manager of manufacturing.

The new official comes to Monroe from the Ford Motor Co. plant, Dearborn, Mich., where he was chief mechanical engineer. He started as a control engineer for Perfection Stove Co., spent three years with Briggs Manufacturing Co. as control and research engineer, was with Chevrolet Gear & Axle Co. as supervisor of plant engineering for six years and with Wyandotte Chemical Corp. as electrical engineer for two.

Mr. Stevens is a registered professional electrical and mechanical engineer. He graduated with a B.S. degree from the University of Illinois, College of Engineering, in 1936 and specialized in mechanical and electrical engineering in the Detroit area.

St. Regis Promotes Eight Deferiet Men

Fred N. Sprague has been appointed sales representative for the printing paper division at the St. Regis Paper Co.'s Deferiet mill. E. L. Phillips has been promoted to manufacturing superintendent, the position vacated by Mr. Sprague.

Mr. Phillips began his employment with St. Regis in January 1950 as cutter foreman in the sheet finishing department. In July of the same year he was promoted to finishing superintendent. He served in that capacity until he was moved up to paper mill superintendent of the Deferiet mill.

Promotions in the technical service department also were announced.

John W. Hurley has been promoted to quality control representative for the Deferiet mill. His office will continue to be located in Deferiet.

Gino M. Zanto has been promoted to chief inspector, the position vacated by Mr. Hurley.

Gerald E. Weirich, formerly with the central technical department in Carthage, has been promoted to assistant chief inspector.

Douglas H. Clark has been appointed to the position of project chemist, his first job with St. Regis. He was formerly with Fraser Ltd., in Canada.

Promotions also were announced for the paper mill.

Herman LaMora has succeeded Mr. Phillips as paper mill superintendent. He was previously machine room superintendent.

Lyle Derby is the new machine room superintendent, and he, in turn, has been succeeded by Donald Kepler, the new swing superintendent.

C-Z Announces Promotions On Management Staff

Crown Zellerbach Corp. has announced three promotions on its management staff, F. O. Boylan, assistant vice president for manufacturing and construction, has been named assistant vice president and general manager for manufacturing. He will report to E. W. Erickson, vice president for manufacturing and construction.

R. R. Edwards, product manager, bags and bag paper has been made assistant vice president for manufacturing in charge of mill operations in California, Louisiana, Ohio and New York.

Herb Wymore, product manager, consumer products is now assistant vice president for overall product management.

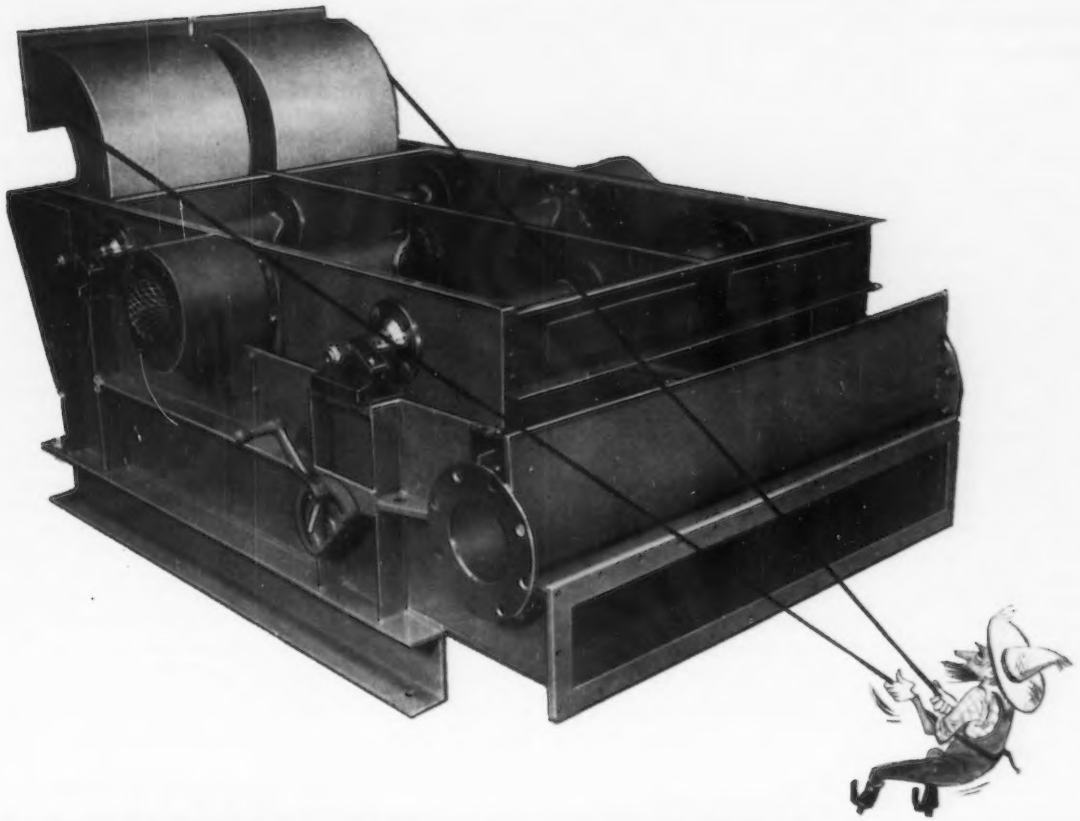
Mr. Boylan joined Crown Zellerbach in 1948, serving as assistant resident manager at Ocean Falls and as resident manager at Camas. He is a graduate of the University of Michigan.

Mr. Edwards has been with Crown Zellerbach since 1947, serving as resident manager at Ocean Falls and from 1954 to 1956 as vice president in charge of manufacture for Crown Zellerbach Canada. He is a graduate of the University of Saskatchewan.

Mr. Wymore has been with Crown Zellerbach since 1938, and has been resident manager at Lebanon and Carthage. He is a graduate of Oregon State College.

Also announced is the promotion of Fred Fleischmann, electronic data processing supervisor, controller's office, to assistant to the manager, marketing services.

Homer Brock, staff assistant, purchasing, Portland office, has joined the engineering staff at the St. Helens mill.



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This simple, sturdy, compact, perforate plate Bird-Jonsson Screen takes out knots, chips, shives, and dirt with minimum loss of good fibre. It delivers up to 100 tons per day of 1½% sulphate, 150 tons or more of 2½% groundwood or sulphate.

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CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

BIRD MACHINE'S 50th YEAR OF SERVICE TO INDUSTRY

Falls Paper Manager Gets Post in England

Gilbert L. Heath, plant manager of the Falls Paper and Power Co., a Scott Paper Co. subsidiary, has been promoted to the position of production manager in charge of manufacturing operations at the Bowater-Scott plants in Northfleet and Walthamstow, England. Mr. Heath will take over his new duties in January.

In his new position, Mr. Heath will report directly to Neville Whitenhurst, Bowater-Scott managing director, and will be responsible for the direction of paper making and converting activities at these plants.

Mr. Heath has been at Oconto Falls since 1954, succeeding Forest Brainerd as plant manager. Prior to that he held the position of technical assistant to H. F. Dunning, vice president in charge of production.

Some of the positions he has held in the Scott organization are patent co-ordinator in the legal department, construction engineer, chief wax paper division engineer and paper mill superintendent and production manager at the home plant in Chester, Pa.

Alvah Crocker

Crocker-Burbank Elects Alvah Crocker President

At a meeting of the board of trustees of Crocker-Burbank & Co. Ass'cn., Fitchburg, Mass., held on December 11, 1959, Douglas Crocker, former president, was named honorary chairman of the board; Alvah Crocker was elected president; Donald M. Crocker, vice president in charge of manufacturing operations; Bartow Kelly, treasurer; and Bigelow Crocker, Jr., secretary.

Alvah Crocker came to work in 1934 upon graduation from the Harvard Business School, became a trustee in 1946, and secretary and vice president in 1954. After four years with the Navy, he was released from active duty in 1945 as a Lieutenant Commander. He is the great, great grandson of Alvah Crocker who founded the company in 1826.

Crocker-Burbank & Co. Ass'cn. is a manufacturer of a large and diversified line of printing papers, book papers, printing bristols and index, industrial papers and converting papers. The company operates 20 paper machines and maintains a large research and development department in a new and modern two-story building of its own, specially designed to house laboratories and the latest in testing facilities and equipment.

The company has three divisions: Crocker, Burbank Papers Inc., which is responsible for the distribution and sale of printing, industrial and converting papers; Louis-Dejonge Co., equipped with machines for coating, impregnating and treating the papers of Crocker-Burbank; Linton Bros. & Co., Inc., which sells printing bristols and index through paper merchants exclusively.

Bronson Retires from Consolidated Paper Post

George Lewis Bronson, director and vice president of the Consolidated Paper Co., Monroe, Ohio, has retired after 40 years with the firm. He became a director in 1938 and a vice president in 1947.

Richard Joins Romar At Holyoke Mill

Romar Tissue Mills, Inc., has announced the appointment of Vincent W. Richard as general superintendent of the Holyoke Division. Until recently, he was superintendent at the Chemical Fine Paper and Board Division of the Paper and Board Division of the Standard Packaging Corp. with which he had been associated since 1948.

Romar Tissue Mills is operating the former No. 1 mill of Whiting Paper Co. in Holyoke and manufacturing printing papers at this location. Romar also operates the former Doeskin mill in Wheelwright where it manufactures facial and bathroom tissue and other tissue products.

Mr. Richard has had extensive paper mill experience, first with the Rising Paper Co. in Housatonic, where he worked for 23 years through the ranks to become assistant superintendent. He left the firm in 1945

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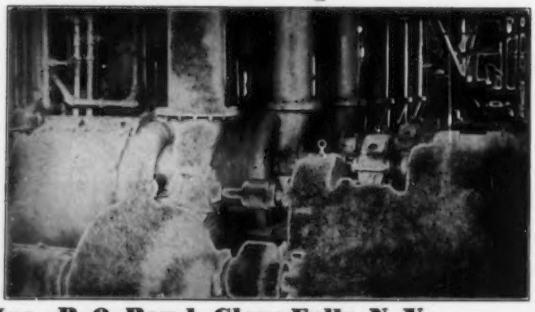
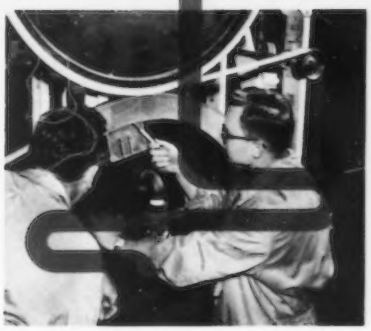


APMEW, Inc., P. O. Box 1, Glens Falls, N. Y.



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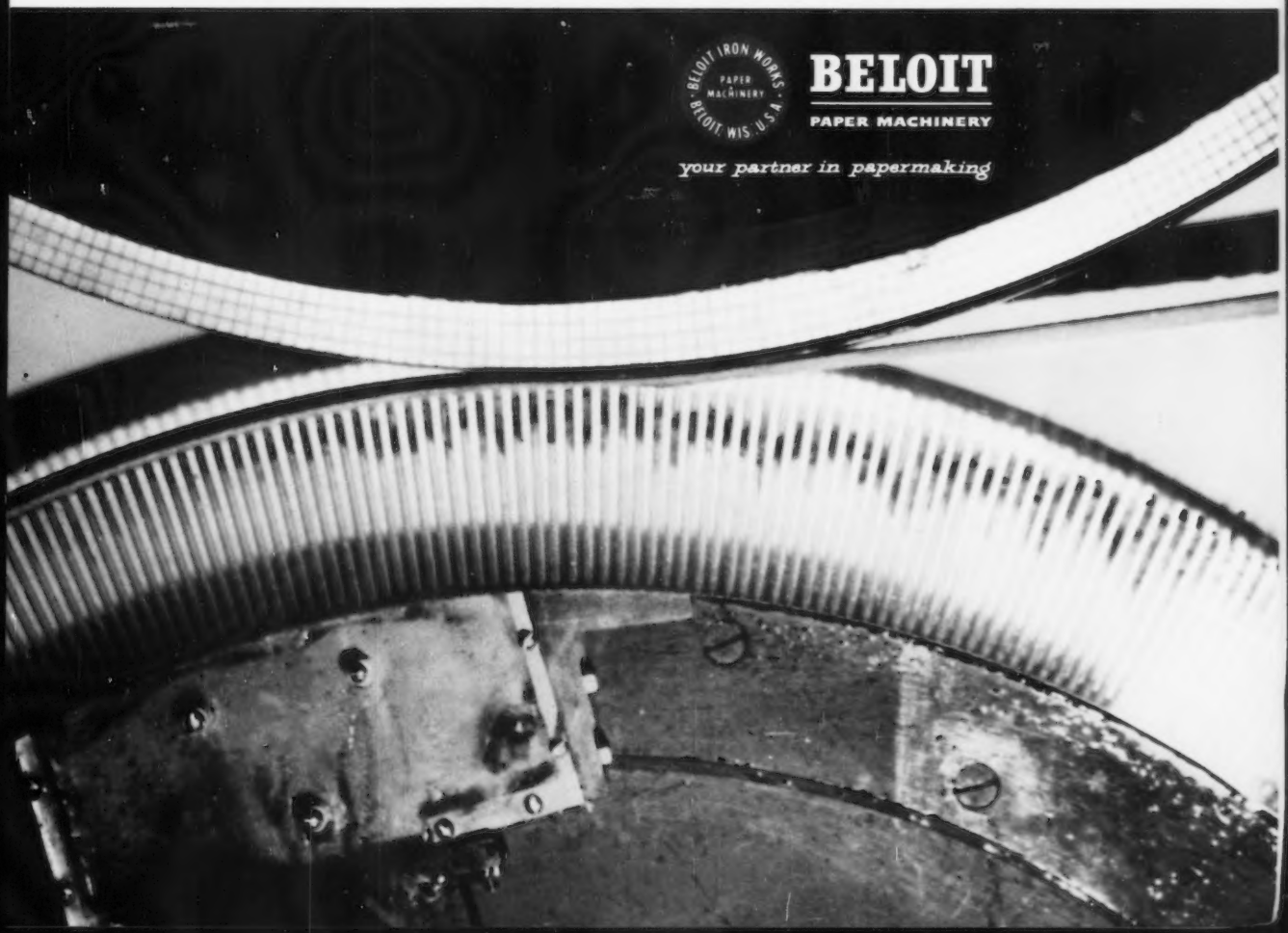
This suction press has never dewatered a sheet . . . yet it has resulted in improved production on thousands of tons. Beloit research engineers built the full-size cutaway model (above) to study water movement. Data derived from the revealing stopped-action photo and other laboratory tests have led to a better understanding of this phenomenon. Improved sheet and felt runs . . . greater press speeds . . . new economies . . . key items in Beloit's continuing research and development program. Beloit "paperesearch" means paper progress—more efficient machines for you, better paper for your customers.

"STROBE" SHOT SHOWING MOVEMENT OF WATER AFTER LEAVING NIP. PHOTO BY C. B. DAHL



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to become general superintendent of the Keith Paper Co. in Turners Falls.

He joined Crocker-McElwain as a machine superintendent in 1948 and became a machine superintendent at Chemical Paper in 1952. He was promoted to general superintendent of Crocker-McElwain in 1953.

Getty Joins Crandon As Executive V.P.

Robert P. Getty has been named executive vice president of Crandon Paper Mills, Inc. Announcement of his appointment was made by Joseph L. Gidwitz, president of Crandon.

Mr. Getty was previously vice president and director of Fort Wayne Corrugated Paper Co., Fort Wayne, Ind.

Crandon Paper Mills, Inc., has its headquarters in Chicago and its mill at Fort Madison, Iowa. It manufactures semi-chemical corrugating medium for the manufacture of corrugated fibre boxes.

Wakeman Joins Packaging Corp. of America

Appointment of Reginald L. Wakeman as director of technical research and development of Packaging Corp. of America was announced by Walter S. Goodspeed, chairman of the executive committee.

The announcement reflects an expanding emphasis on scientific and technical research and development programs by the national packaging organization under the overall direction of John L. Wilson, vice president-research and development.

Dr. Wakeman formerly was director of research at Quaker Chemical Products Corp. and Onyx Oil & Chemical Co. He received his Ph.D. from Massachusetts Institute of Technology, and carried out post-doctorate research in Paris and Zurich, Switzerland.

Author of the reference book, "The Chemistry of Commercial Plastics," and 34 scientific articles in American and European publications, Dr. Wakeman also is widely known as a lecturer to numerous professional and scientific groups in the U.S., Canada, France, and Switzerland.

Keep your eye on our Classified Advertising Section

This New Nash Vacuum Pump Offers Four Separate Suctions and Vacuums Simultaneously

The Nash 5308-A has four separate suction inlets, each of which functions independently of the others. This offers the machine operator great flexibility, since these may be used in any desired combination to produce a variety of capacities and vacuums.

Picture below shows simple drive possible and flexibility of piping permitting capacities to exactly fit requirements of different sections of the paper machine.

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PTJ NEWS OF CONVERTERS

Sisalkraft Develops New Vapor Barriers

American Sisalkraft Corp., Attleboro, Mass., has announced that it is prepared to produce a complete family of low cost, vapor barriers which combine outstanding appearance with a unique group of physical properties—including permanent fire resistance—that cannot be obtained in conventional materials. Expected to be widely employed in the building, construction, heating, ventilating and associated fields, the first of this new family of barriers consists of aluminum foil and kraft paper bonded together with a flame extinguishing adhesive and reinforced with fiber glass strands. This basic kraft-to-foil Pyro-Kure can be supplied with various weights of paper, thickness of foil, and amounts of reinforcement, and also in foil-to-embossed kraft, either black or white, and in foil-to-foil barriers. Other combinations will soon be made available.

Advantages of these new materials are: (1) their flame resistance; (2) their vapor-proofing characteristics; (3) their strength and durability; (4) their low cost; and (5) their attractive appearance. The fireproof characteristics are obtained by a special flame extinguishing adhesive that is used to bond the sandwich. When the temperature surrounding the material reaches the combustion stage, this adhesive releases gases or vapors that prevent the flame from spreading throughout the material. The effectiveness of Pyro-Kure combinations is not dependent upon the use of salts, which heretofore have been used to provide flame resistance. Not only may salts leach out over a period of time, causing loss of fire-retardant characteristics, but being corrosive, they may attack the foil and destroy the vapor proofing features of the barriers.

Maximum water vapor permeability of the Pyro-Kure family is said to be less than 0.10 perms. However, these are conservative ratings, and generally will be exceeded. Average flame spread is 15 on the foil side and 30 on the kraft side, as rated by Underwriter's Laboratories. A rating of less than 50 is defined as noncombustible.

Applications are expected to be as insulation facings for lining of pipes and ducts, and for general barrier usage in commercial and industrial construction.

Additional information on the new Pyro-Kure grades can be obtained from American Sisalkraft Corporation, Attleboro, Mass.

Box Firm Changes Name; Adds Line

Specialty Container Corp. is the new name announced for the Dallas corrugated box firm previously known as Specialty Papers Co.

John L. Dale, president, and B. A. McKenzie, vice president and treasurer, jointly announced their company's name change made "in order better to describe our present operation."

The company originated in 1952 as a converter of gift wrapping materials, switched in 1954 to the manufacture of corrugated boxes. It moved to its current factory location in October, 1958, after several previous moves to gain more space.

Along with the name-change announcement, Mr. Dale and Mr. McKenzie told of the installation of equipment to manufacture polyethylene bags for the general industrial market—to be sold along with the corrugated boxes which Specialty Container continues to make.

Atlantic Container Names V-P in Charge of Display

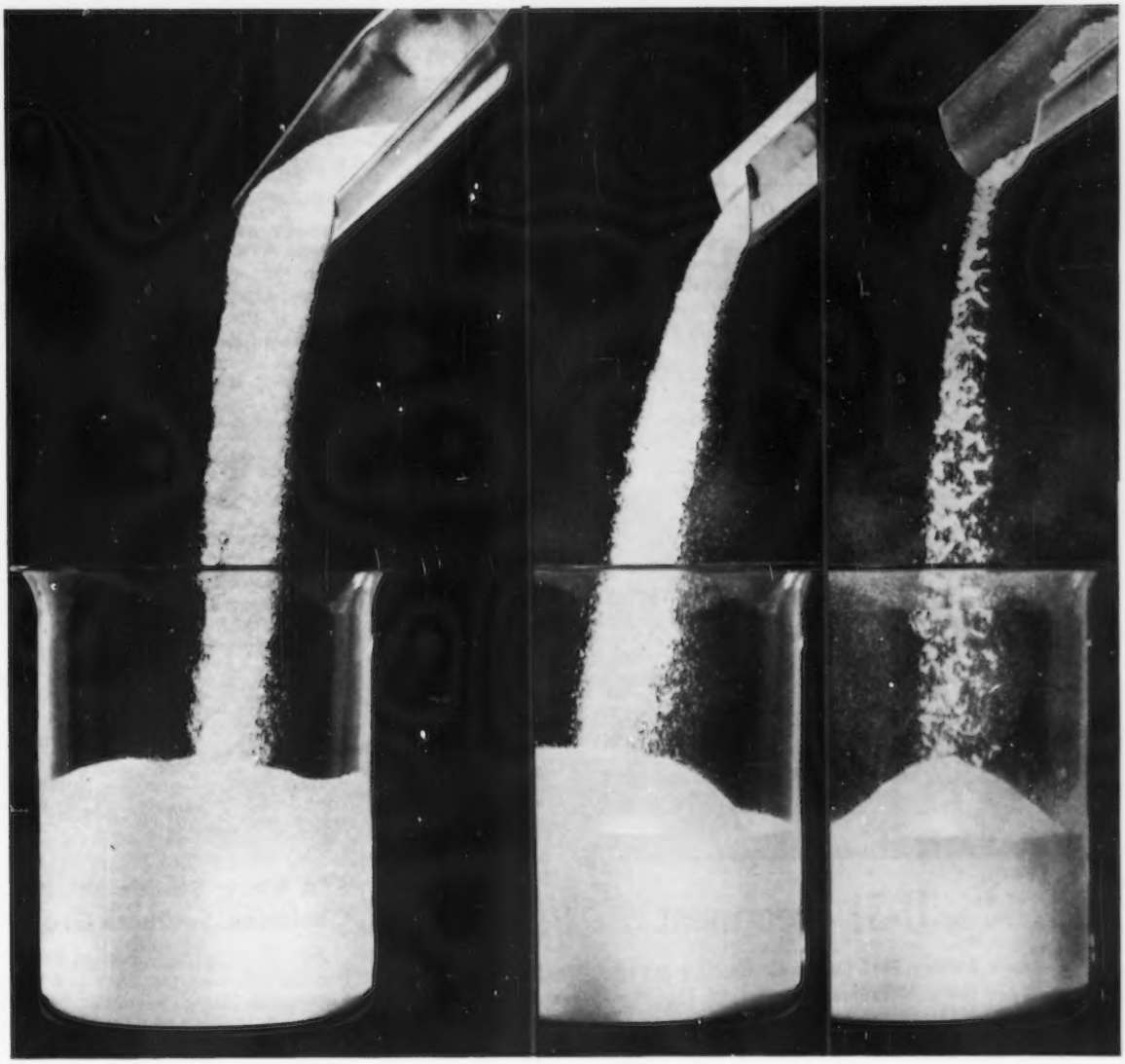
Sy E. Einhorn has been appointed vice president in charge of the display division of the Atlantic Container Corp. of Long Island City, N. Y.

Announcement was made by Arthur Feldman, president of the division, who said that this is a major step in implementing Atlantic's new integrated program to aid the marketing and sales promotion department in developing the most effective point-of-purchase displays for customers.

Carthage Cord Co. Moves to New Location

Carthage Cord Co., Joplin, Mo., has moved its operations to 424 Howard St., from the W. T. Morrow building at 919 West Fairview Ave.

The Howard street property has about 18,000 feet of floor space, while the Morrow building which has been occupied by the Cord company



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Note how quickly Westvaco Soda Ash pours, without raising clouds of dust . . . demonstrating that it will be faster and cleaner to unload and handle in your plant. That's because Westvaco Soda Ash is composed of unique, needle-like crystals that literally *roll* out of the scoop or hopper car. They don't grind themselves down to dusty fines.

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has 8,000 feet. Mr. Morrow said the West Firview property, which is adjacent to the Missouri Pacific right-of-way, has not as yet been leased to other tenants.

Carthage Cord Co. manufactures twisted paper cording which is used by Flex-O-Lators, Inc., in its manufacturing operations. The Flex-O-Lators plant is at 131 Locust Street.

$100,000 Fire Hits St. Joseph Plant

Fire of undertermined origin caused $100,000 damage to the Wyatt-Green Paper Box Co. in the riverfront area in St. Joseph, Mo., on December 6. Practically all contents and equipment in the two-story brick structure, which fronted on two streets, were destroyed.

Berry Joins Langston Bag As General Manager

T. Raymond Berry has been appointed general manager of the Langston Bag Co., Memphis, Tenn., it was announced by F. B. Langston, president.

For several years, Mr. Berry was chief executive of Fulton Cotton Mill's Dallas bag factory. In 1957 he became general manager of the firm's Atlanta textile and canvas operations. When Fulton closed its bag plant, Mr. Berry was selected to administer laminating operations.

Hoslett Becomes Curtis Regional Vice President

Ernil J. Hoslett, vice president and manager of the local division of Curtis 1000 (envelope company), has been elected regional vice president. He was also appointed general manager of the Louisville and Houston divisions. Mr. Hoslett will continue general supervision of the Cleveland division and will keep his headquarters there.

Ben-Mont Appoints Smith District Sales Manager

Ben-Mont Papers, Inc., gift wrapping manufacturers of Bennington, Vt., announces the appointment of Eugene O. Smith, 7413 E. 110th St., Hickman Mills, Mo., as district sales manager for the Ben-Mont line of Art-Craft gift wrappings and Ben-Mont metalized saran icicles, and allied products.

Supervision of sales within the states of Missouri, Kansas, Nebraska, Iowa, Minnesota, North Dakota, and South Dakota will be under Mr. Smith's guidance.

FPA Elects Steadman Chairman, Southern Group

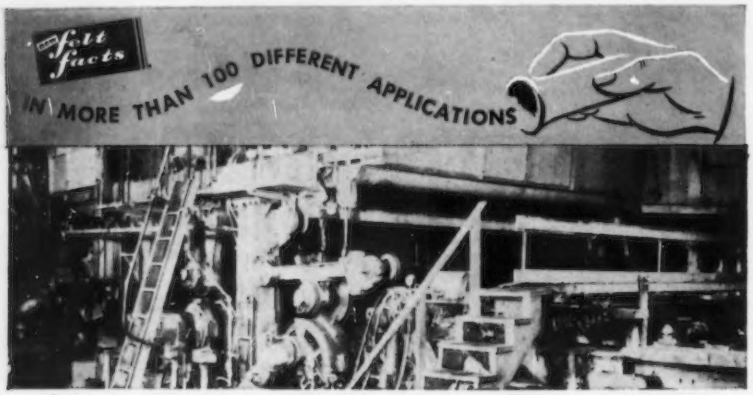
Nat T. Steadman, National Folding Carton sales manager for Mead Packaging, Inc., has been elected 1960 chairman of the Southern Group, Folding Paper Box Assn. of America. He was elected at a meeting of the association at the Grand Bahama Club on Bahama Island.

As chairman he will direct the association's activities in the Carolinas, Georgia, Florida, Alabama, Mississippi, Tennessee, Louisiana, Texas, Oklahoma and Arkansas.

Wolverine Carton Chooses Asst. General Manager

Russell H. Spees, president and general manager of Wolverine Carton Co., subsidiary of Packaging Corp., of America, has announced the appointment of Edward M. Deane, Jr., assistant general manager.

Mr. Deane formerly was plant manager of the Grand Rapids mills and folding box operations of American Box Board division prior to the merger of the folding operations with Wolverine Carton last June.



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Based on actual in-plant experience and prepared by well known men in the paper industry, this 126 page book brings you in easy to read language procedures for plant maintenance of kraft mills, semi-chemical mills, bleach plants, fourdrinier and cylinder machines, stock preparations equipment, and other machinery used in pulp and paper making. Price $2.50.

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NEW LITERATURE

High Capacity Flow Indicator

Provides design specifications of Model 132-OB flow indicator which is an integral by-pass type. Specification Sheet DS-132. Brooks Rotameter Co., P. O. Box 432 Lansdale, Pa.

Material Handling Equipment

Contains answers to a wide range of material handling problems and installation photos which demonstrate the adaptability of this equipment. Whiting Corp., 157th & Lathrop Ave., Harvey, Ill.

Scale-Up for Solids Processing

Provides a series of case studies to show why the scaling-up of solids processing equipment is different and difficult. Also explains methods for arriving at the key factor, the difficulties in projecting laboratory data and the value of experience. Bulletin I-64. Sprout, Waldron & Co., Inc., 130 Logan St., Muncy, Pa.

Stickle Micro Adjustable Orifice

Shows a new type condensate flow regulator said to do a better job at less cost than steam traps. Also includes tables which give the capacity of condensate handled under different pressure differentials and other conditions. Bulletin 300-M. Stickle Steam Specialties Co., 2215 Valley Ave., Indianapolis 18, Ind.

Electrik Tel-O-Set System

Specification FS301-3a covers I/P transducer and valve operator; FS301-4a covers PP/I transmitter; FS301-5a covers MV/I transmitter; FS301-6 Electrik Tel-O-Set system; and FS301-11 covers the power supply. These sheets outline the different components of this system. Minneapolis-Honeywell Regulator Co., Wayne & Windrim Aves., Philadelphia 44, Pa.

Koppers Paper Coating Latices

Describes some of the research and development facilities they have available to create better paper latices and completely check them on reliable equipment before submitting them for field application. Koppers Co. Inc. Plastics Div., Pittsburgh 19, Pa.

Electronic Conductivity Controller

Describes automatic control of concentration of caustic, acidic or aqueous solutions in either continuous or batch-type metal washing equipment, and other applications where precise concentrate levels must be maintained. Electro Mechanisms Corp., 7301 Ridgeway Ave., Skokie, Ill.

Laminated Plastics Vulcanized Fibre

Provides application information and engineering data on laminated plastics and vulcanized fiber. Condensed Catalog. Taylor Fibre Co., Norristown, Pa.

Auto-Grip Pipe Hanger Ring

Describes the self-locking, one-piece pipe hanger and includes dimensional data for supporting pipes from one-half to eight inches. Brochure AG-3. Automatic Sprinkler Corp., Jones & Brittain Sts., Youngstown, Ohio.

Jeffrey Process Industries Equipment

Presents a panoramic view of this line of equipment. Catalog 978. Jeffrey Mfg. Co. Columbus 16, Ohio.

Outdoor Flood Lights

Condenses a good general cross section of their complete line of cast aluminum outdoor floodlights. Also includes illustrations, specifications and dimensional drawings on new decorative outdoor bullets, etc., Catalog S., Stonco Electric Products Co., 333 Monroe Ave., Kenilworth, N. J.

Pyrex Lifetime Drainline

Contains product and property data, information on making joints and hanging, and a complete list of available fittings. Schematic drawings and tables are included. The system is of corrosion-resistant, tempered glass piping and fittings which features a one-piece coupling. Bulletin PE-30. Plant Equipment Sales Department, Corning Glass Works, Corning, N. Y.

Cellosize — Hydroxyethyl Cellulose

Includes extensive data on properties, preparation of solution, film and coating properties, preparation of water-insoluble films, applications, toxicological properties, specification limits, shipping data and test methods. 16p Booklet. Union Carbide Chemicals Co., 30 E. 42nd St., New York 17, N. Y.

Fluid Power Equipment

Provides specifications, illustrations, references and descriptive matter on the complete line of standard Oilgear and Servocontrol Division equipment. Bulletin 10051-H. Oilgear Co., 1560 W. Pierce St., Milwaukee 4, Wis.

Jaguar Guar Gum

Contains additional information about the physical and chemical properties of guar gum since their first publication in 1956. 16p Booklet. Jaguar Dept., Stein Hall & Co., Inc., 285 Madison Ave., New York 17, N. Y.

New Color Horizons

Easy-to-read techniques includes 76 full-color application photos and 110 color chips to show actual colors at a glance. Special technical data section features complete information on surface preparation, types of surfaces, application techniques, etc. Form No. 259. Rust-Oleum Corp., 2799 Oakton St., Evanston, Ill.

OBITUARIES

Louis Sendrow, 56, of Philadelphia, Pa., a manufacturer of paper boxes, died December 3 at the Medical Arts Center, New York City. He was a partner in the Claghorn Paper Box Manufacturing Co., Lowell, Mass.

Sidney Jacobson, 66, president of the Henle Wax Paper Mfg. Co., Inc., died suddenly on December 7 of a heart attack.

Mr. Jacobson was associated with Henle for approximately 45 years in various capacities.

Gordon I. Hoover, 59, mill manager, Provincial Paper, Ltd., Thorold, Ont., passed away December 8, 1959, at the Hotel Dieu Hospital.

Dr. Hoover graduated from the University of Toronto with an M.A. in chemistry in 1924 and received a Ph.D. in 1926 from Emmanuel College, Cambridge University. He lectured at the University of Toronto for a brief period but became identified with the paper industry during the late 20's. He joined Provincial Paper in 1930.

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Southland selects E-M for 79,750 motor horsepower and 70 motor controls . . .

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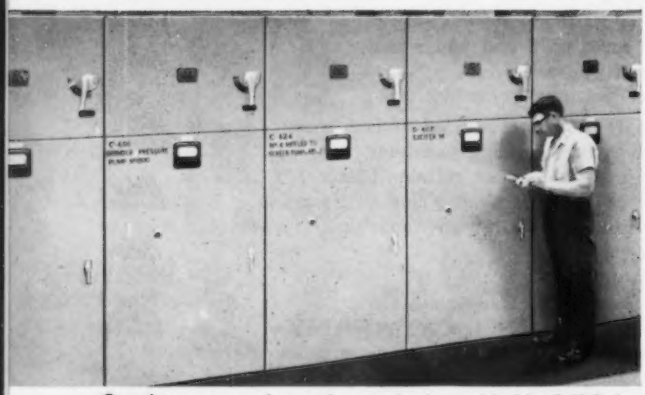
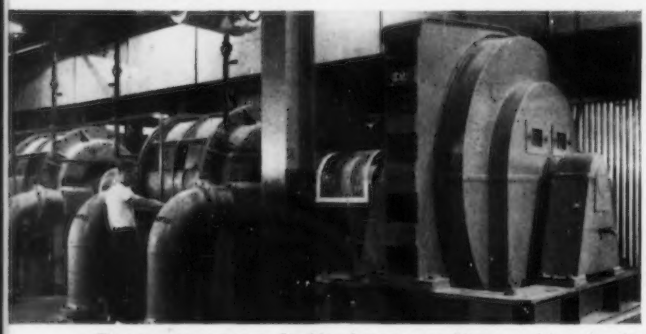
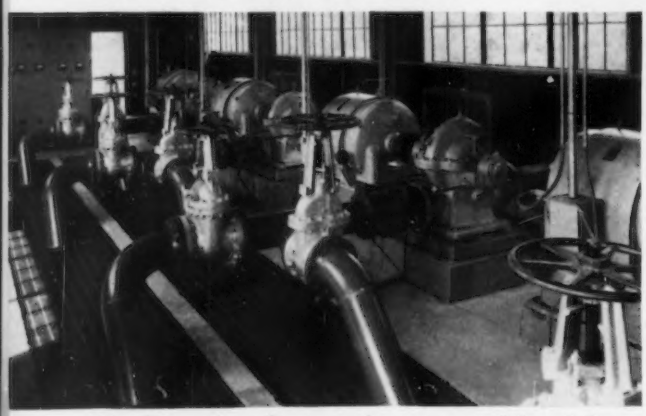
Because for 20 years E-M apparatus proved its reliability at Southland



Complete motor and control protection is provided by E-M Safuse Controls. Controls shown are for induction motor pump drives and motor-generator sets. Filtered ventilating air in this room keeps maintenance at a minimum.



Three vacuum pumps for No. 4 paper machine are driven by this single E-M pedestal-type, splashproof, synchronous motor. Motor is rated 700 hp, 180 rpm, 1.0 PF, 2300 volts.



24 million gallons of water a day are pumped through this unattended booster pump station. The four E-M splashproof synchronous motors are rated 400 hp, 1800 rpm, 0.8 PF, 2200 volts.

It's in the records at Southland—proof that E-M Motors and Controls stand up to grueling paper mill schedules! Here's why E-M Motors run so well in the paper mills—they . . .

1. Are specially designed for paper mill service. E-M Motors perform "inconspicuously" at Southland. A glance at their service record shows they require practically no unscheduled maintenance. They are designed that way by E-M engineers with 40 years' experience in solving paper industry motor problems.

2. Need little attention. An occasional cleaning and bearing check is all that Southland's E-M Motors require. Duty-matched applications minimize motor maintenance.

3. Lower power costs. Two-thirds of Southland's entire mill power load is consumed by grinder motors. To keep the power bill low, E-M engineers carefully coordinated motor electrical and mechanical designs for most efficient conversion of power.

4. Correct power factor. Unity and 0.8 leading power factor E-M Synchronous Motors help boost Southland mill power factor to over 95%—further reducing power costs.

E-M motor controls also proved more than satisfactory. Besides being highly reliable, Southland's modern E-M Safuse Controls provide all these features:

1. Safeguard personnel, motors, and controls. Foolproof interlocks keep Southland operators safe. High speed current-limiting fuses are matched with sensitive overload relays to protect Southland motors and controls over complete design range of overload and fault conditions.

2. Fully front-accessible for convenience. And because they don't need a wasteful rear aisle, Southland saved valuable floor space and building costs.

3. Simplest, most reliable synchronous motor starting. E-M-invented Polarized Field Frequence Relay starting on all of Southland's E-M Synchronous Motor Controls pulls motors into step smoothly and powerfully every time.

Call the E-M sales engineering office near you for more information about E-M electrical apparatus specially designed for the paper industry. And write the factory for a free copy of *The Paper Mill Number of the E-M Synchronizer.*

Five of 14 E-M Synchronous Motors on pulp grinder drive at Southland. These open-type, self-ventilated motors have top air discharge ducts that exhaust through the ceiling. Only filtered air enters motor room. Motors are rated 5000 hp, 240 rpm, 1.0 PF, 6900 volts.

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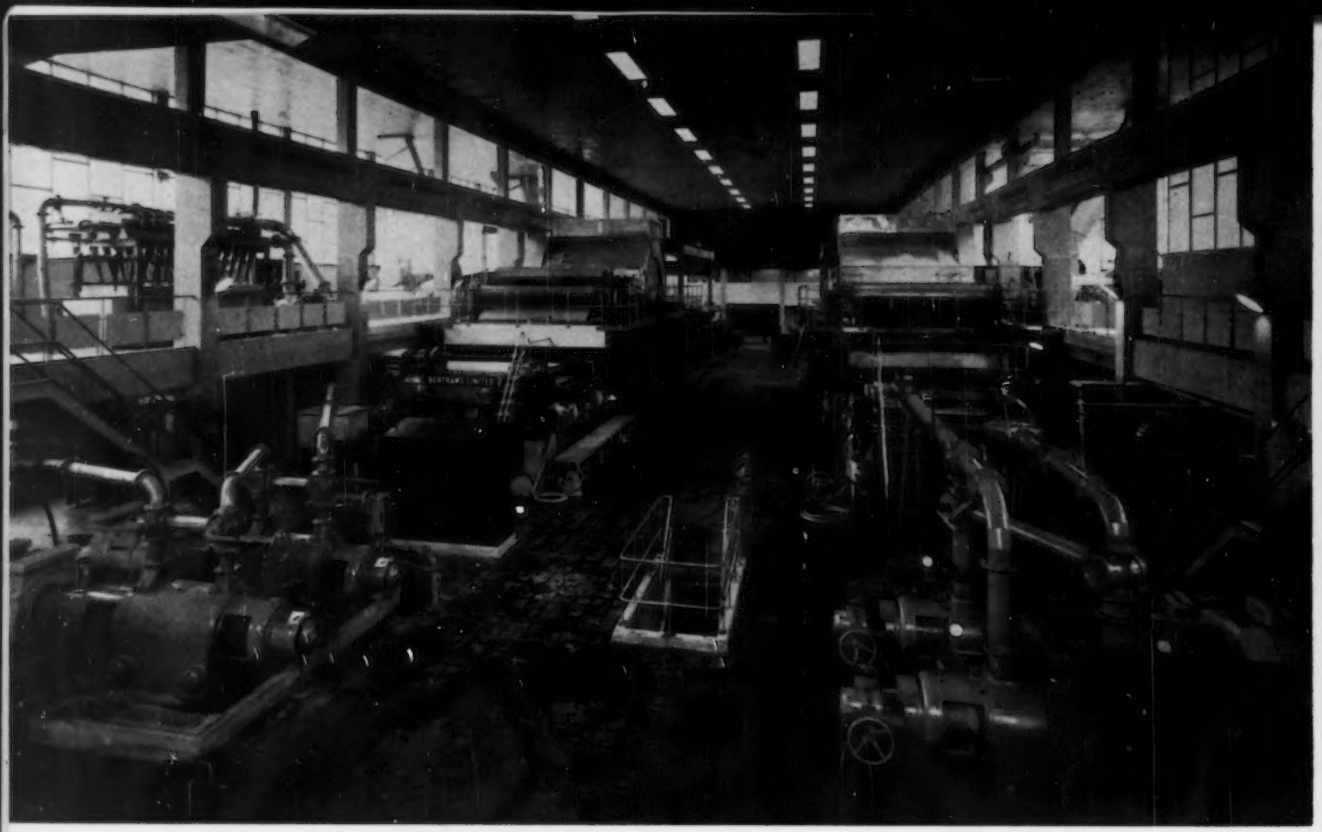


Second Tissue Machine Begins Operation At Reed's Aylesford Mill

Unique features include a design speed of 4,000 f.p.m. and a Yankee dryer designed for pressures up to 150 p.s.i. Details are given on the machine drive.

Another new cellulose wadding tissue machine started up late this fall at the Kimberly-Clark joint mill with Albert E. Reed & Co. on the Reed plant site in Larkfield, Kent, England. The editor had the pleasure of inspecting this Reed plant and enjoyed their hospitality when he was in Kent this past spring. The new machine, like its predecessor, was supplied by Bertrams, Ltd. of Sciennes, Edinburgh. The new machine is similar to the first one, but is two inches wider. For those of our readers who wish to make a further comparison, we refer them to our September 16, 1957, issue. The new machine has been designed to run at an ultimate top speed of 4,000 f.p.m. and for a present speed of 3,000 f.p.m. The previously installed machine is now running at speeds in excess of 2,500 f.p.m.

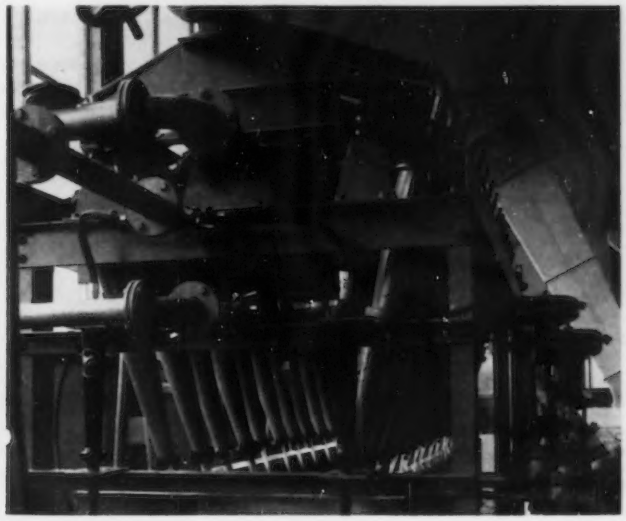
Albert E. Reed & Co. operates 13 machines at its Aylesford plant producing a range of papers including newsprint, liner board, publication papers, kraft wrappings, M. G. tissues, etc., etc. Reed has two more mills nearby with an additional seven machines.

Stock Preparation

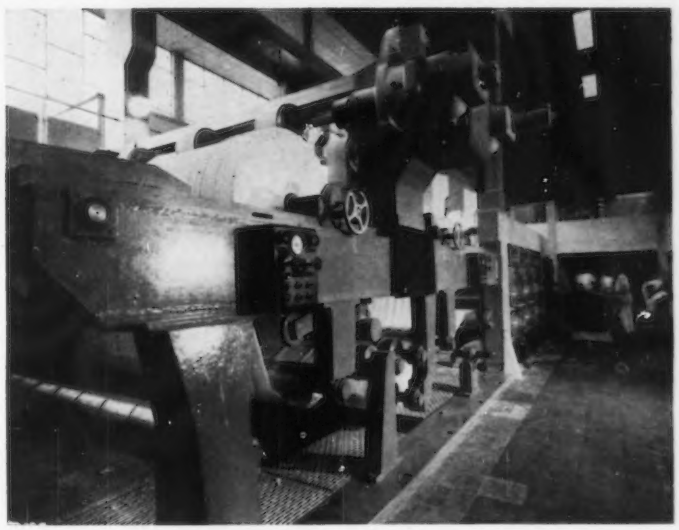
Pulp used is bleached sulphite and kraft, imported from Canada and Scandinavia, which is trucked to the tissue mill from Reed's pulp storage area and unloaded by hoist. The bales are fed up a conveyor to a Black-Clawson Hydrapulper where they are slushed with water. The pulp is then pumped from the Hydrapulper to a dump chest and thence to the machine chest.

It next passes to two Black-Clawson Hydrafiners which can be operated in series or in parallel. The pulp is transferred through a stuff gate to Bauer Centricleaners where dirt and shives are removed. Accepted material then goes to a fan pump which delivers to the inlet of the wadding machines via two Black-Clawson Selectifier screens.

Hydrapulper slushes sulphite and kraft pulp preparatory to further processing by refiners.



Stock cleaning equipment for No. 2 machine. Accepted stock is pumped to headbox via two Selectifier screens.



Dry end view of tissue machine. Paper feeds from unwind stand through three pairs of breaker rolls to the rewinder.

Machine Wet End

The new machine has an operating speed of 3,000 ft. per minute, with a potential speed of 4,000 ft. per minute, and has a 134-in. wide wire. It is divided in four main sections: fourdrinier, press, dryers and reel followed by a specially designed unwind section which handles reels up to 78-in. diameter. The unwind section is equipped with three breaker calenders and damper, arranged to operate with the rewinder.

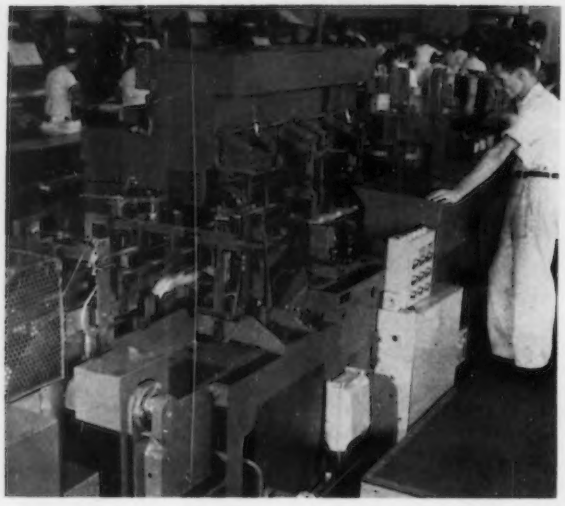
The pressurized headbox is a Kimberly-Clark patented design. The fourdrinier table is equipped with three grooved, large table rolls, and is mounted on side brackets which permit free vertical and horizontal movement. The breast roll is perforated. The plain couch is fitted with cantilever gear. The wire return roll is fitted with hydraulically operated stretch gear and a Bertram pneumatic wire guide. The complete fourdrinier frame is designed to run out for wire changing.

The press section consists of a plain pick-up and a suction press. The press is equipped with a suction bottom roll, and a rubber covered top roll. A top felt serves as a pick-up felt and has a rubber covered spring-loaded roll riding on the couch with air motor-operated raising and lowering equipment, for use during wire or felt change. The bottom felt has large rubber-covered wringer rolls arranged with pressure controlled showers and suction boxes.

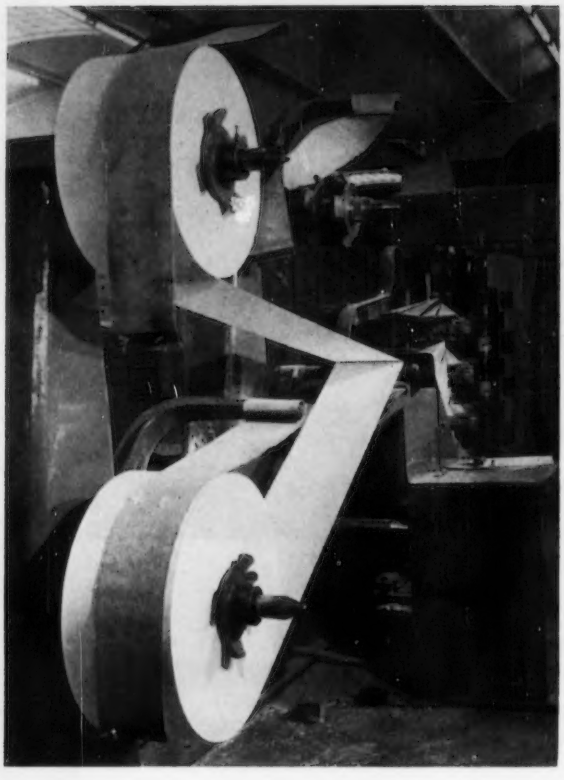
Yankee Dryer and Reel

The Yankee dryer is 12 feet in diameter and is specially designed for high pressure operation, up to 150 lbs. per square inch, said to be the highest in the world. It is equipped with a rubber covered suction pressure roll. A high velocity Carrier-Ross air hood is arranged over the dryer. Two heavy duty oscillating doctors with pneumatic pressure units are arranged to work on the dryer.

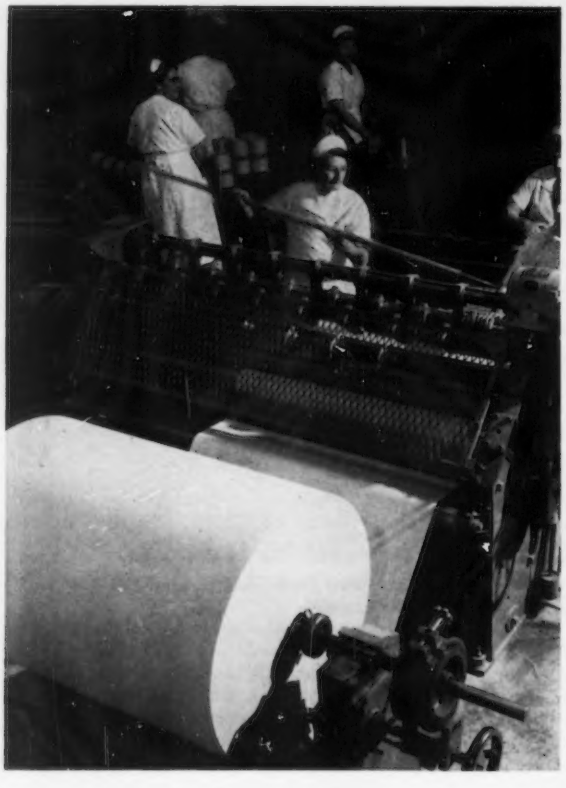
There is a special twin drum reel of Kimberly-Clark design with weighing and automatic changeover equipment designed to handle reels up to



◄ Kleenex tissue cartoning machine.



Part of Kleenex pocket pack converting unit. ►



◄ Winding equipment for industrial paper towelling.

Product conveyor system from converting area to warehouse ►

78 in. diameter. An overhead crane transfers the reels to unwind stands. These are designed to handle two or three reels at a time and are fitted with motorized web driving equipment incorporating electro-magnetic braking units. The reel brakes are controlled by pneumatic cylinders to apply tension to the reels for driving and for rejecting empty core shafts. A special dust-removal duct is arranged between the main unwind sections with slotted pipe extractors and grid top.

The paper from the unwind stands is fed to a rewinder through three sets of breaker rolls, each set fitted with oscillating doctors with dust-extractors, diaphragm type lifting units and special nip guards. A quick operating sheet breaker is incorporated for emergency. The rewinder was supplied by British Winders.

Paper Machine Drive

The main drive of the machine consists of three electronic speed regulation sections: the couch, the dryer and the reel, plus helper drives at the wringer, press and dryer pressure rolls.

The drive was supplied by Associated Electrical Industries, Ltd. Each section consists of a d.c. separately excited shunt wound motor, a generator to supply armature power, and an electronic speed regulator to control motor speed. Three helper motors are mechanically connected in parallel with the dryer motor. This connection is made via the machine felts and the torque they exert can be adjusted by motor field rheostats mounted on the operator's panel. A seven-unit M.G. set is driven by an 850-h.p. synchronous motor which provides power factor correction.

Each electronic speed regulator has a pre-amplifier and flux reset magnetic amplifier output stage supplying the section generator field power. The flux reset magnetic amplifiers have a response time of less than one-hundredth of a second. At the input to the pre-amplifier speed reference voltage is compared with a feedback voltage from a high accuracy d.c. tach-generator coupled to the section motor. Any error of section speed from that desired by the reference is immediately corrected.

Crepe ratio is adjustable over a wide range by a rheostat in the reel reference circuit. Direct indication of crepe ratio is given by a meter on the operator's panel. The draw between the couch and the felt section can be adjusted by means of a rheostat in the couch reference circuit. Actual draw in feet per minute is shown on the couch operator's panel. Overall machine speed is adjusted by altering the dryer section speed. Regenerative braking is provided for the dryer section and dynamic braking for the reel section. Automatic reel change equipment includes Selsyn transmission between the pressure arm torque motor and the pressure arm pinion.

The winder drive is an electronically speed regulated, single motor, Ward-Leonard drive with Selsyn transmission to the sections of the winder. The transmitter Selsyn is driven by a 175-h.p. d.c. motor and is located in a sub-station away from the winder. The receiver Selsyns are coupled to the breaker roll and rewind sections.

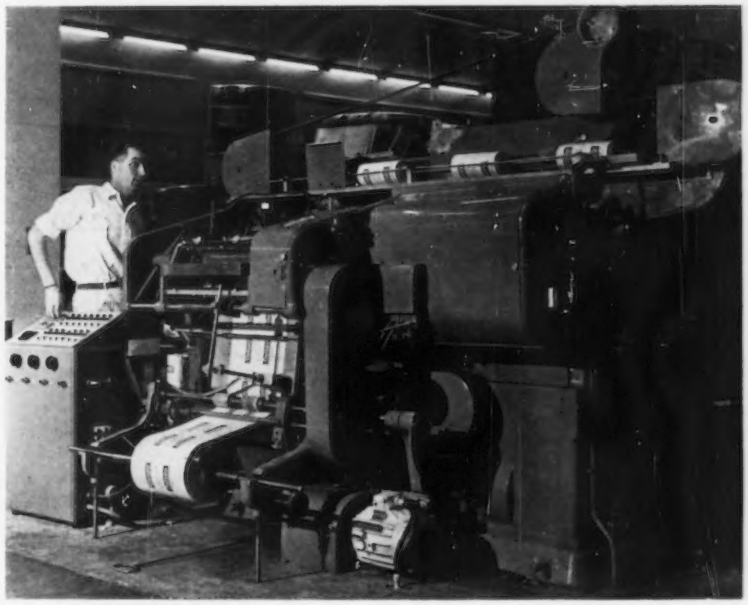
The speed ratios of the reel to breaker roll and breaker roll to rewind sections are controlled by differential systems. These ratios remain constant at all winder speeds from crawl to maximum. Both ratios are indicated and recorded.

The overall speed of the winder is controlled by the transmitter Selsyn driving motor which is a d.c. machine supplied from a M.G. set and electronically regulated. It will crawl the winder at 100 ft. per minute, accelerate it to any preset speed up to maximum, and stop it in emergency under current control.

Rolls from the rewinder are transferred to a conveyor. They are automatically weighed and then wrapped before being taken into storage from where they are called forward as required by the converting plant.

Converting

A high degree of automatic operation characterizes the converting plant. An overhead mono-rail conveyor is used to move rolls of wadding to the various production lines, fork-lift trucks being employed to handle the heavier loads. Most converting lines employ female labor on a two-shift per day basis—6 A.M. to 2 P.M. and 2 P.M. to 10 P.M.—but some lines, worked entirely by men, operate three shifts round the clock.



Automatic wrapping and sealing machine for toilet tissue. Wrapped rolls are packed in cartons and moved to a conveyor.

Converting operations include finishing and packaging of facial and toilet tissues and paper napkins and towels.

A typical production line is that converting the tissue mill's output to Delsey toilet tissue. Nine machines rewind, perforate and cut the tissue to width; finished rolls are fed on to conveyors at the end of which are automatic wrapping and sealing machines. Wrapped rolls are then packed in cartons and moved up a belt conveyor to an inclined roller conveyor. This takes finished products to a central storage area where they are stacked in product groups and dispatched by truck and rail as orders are received.

German Experiments Shed Light on Paper Machine Drainage Problems*

Interesting and valuable information obtained by a dynamic dewatering method devised by two German scientists to simulate actual paper machine operation.

One of the elementary studies on a running paper machine wire is to determine the pressure differential between the upper wire surface and a closed box below the wire. Before the present design of suction couch was introduced only the flat boxes worked on this principle and the pressure differential used was very small. With the introduction of the suction roll, however,, it became possible to obtain as high as 23-24 inches. Hg. pressure difference. Because of the use of the suction couch, dryness ranges have been achieved allowing great increases in speed.

It is quite impossible today to run a modern paper machine without using a suction couch. If the large amount of work by the vacuum pumps is considered, then it is difficult to understand why there is so little literature available concerning drainage problems. Therefore, let us consider here the relationship between pressure difference and drainage time. Other conditions such as stuff mat thickness and the dryness of the mat obtained for a constant air quantity will also be considered.

Experimental Apparatus

The complete simulation of dynamic dewatering on a paper machine wire by a stationary apparatus necessitates firstly the movement of the wire, and secondly that the working conditions can be varied and of the same type as the dynamic happenings on the paper machine itself. This means that the suction and drainage time must be variable to relate to each speed of the machine and suction used on it. Additionally, it is necessary in each separate case to measure the air quantity used in the vacuum equipment and sucked through the sheet.

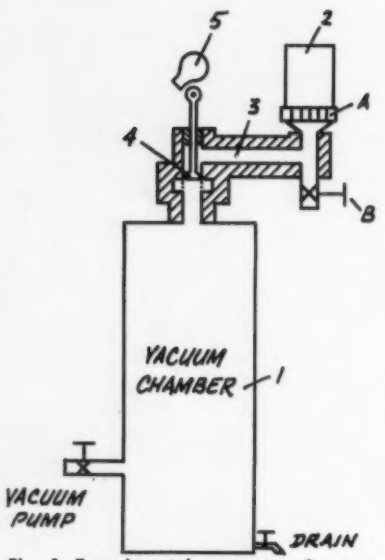


Fig. 1. Experimental apparatus. See text for explanation of numbered section.

Figure 1 is a diagrammatic layout of the equipment which was used to fulfill these conditions. The sheet former for producing the fiber mat was that of the Schopper Riegler drainage tester (2) which was mounted on the top of a relatively large tank (1) with a short piece of pipe (3) and a plate valve (4) between. By means of a lever system (5) the valve may be opened or shut in such a way as to control the drainage time to 0.05 to 0.4 seconds. Other equipment includes a vacuum pump and pressure gage connected to the tank.

In running a test the Schopper Riegler drainage container was placed on wire A with valve B open. Drainage occurred under its own head until water no longer drained off from the sheet. Valve B was then closed. The plate valve (4) was then opened by starting the motor rotating the cam (5) once for each experiment, thus putting the bottom of the sheet

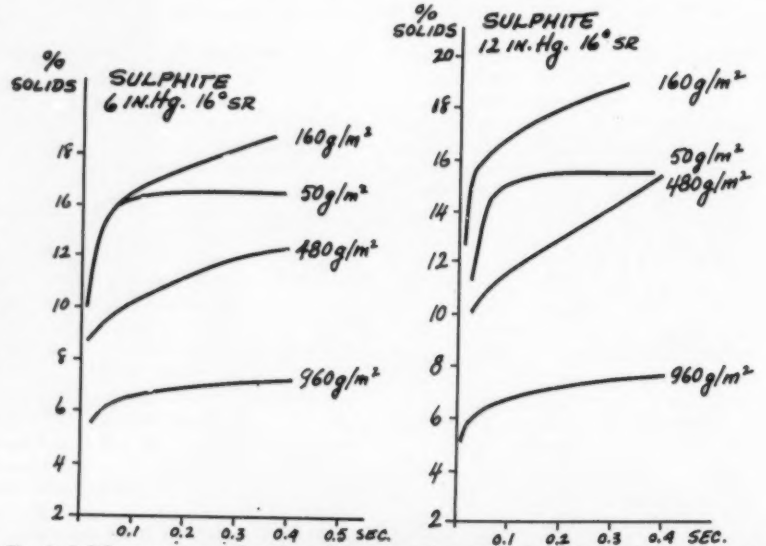


Fig. 2. Solids content as a function of drainage time at a relatively low beating degree of 16°SR and vacuum of 6 inches Hg. and 12 inches Hg.

*An abbreviated translation of "An Extension of the Problem of Drainage of Fiber Layers Under Vacuum" by W. Muller Rid and G. Rausch from the German magazine "Wochenblatt für Papierfabrikation".

in contact with the vacuum in the tank. The opening of the valve was very rapid and a certain amount of air entered the tank. This caused the pressure in the tank to raise and thus the quantity of air through the sheet could be calculated. By weighing the sheet as removed and in the bone dry condition the percentage water was determined.

The dryness afer initial drainage under the equipment's own head was about 4 per cent dry; this is not of course the same dryness as obtained on the paper machine wire at the end of the table roll part when suction by the flat boxes is first applied. This small deviation can be neglected, however, because at this percentage dryness no air passes through the sheet.

In the experiments conducted, we studied the influence of factors which change because of production requirements such as amount of suction and length of drainage time. Also studied were factors depending on the fiber mat such as those influencing formation and drainage, basis weight and beating degree.

Various stocks were checked and the influence of equipment such as stone bars or metal bars in the beaters was studied. In all experiments, sheet dryness and corresponding air quantities were determined at different drainage times and vacuums. In the ensuing discussion only the more important results are mentioned, those which play a part in determining the capacity of vacuum drainage equipment for a paper machine.

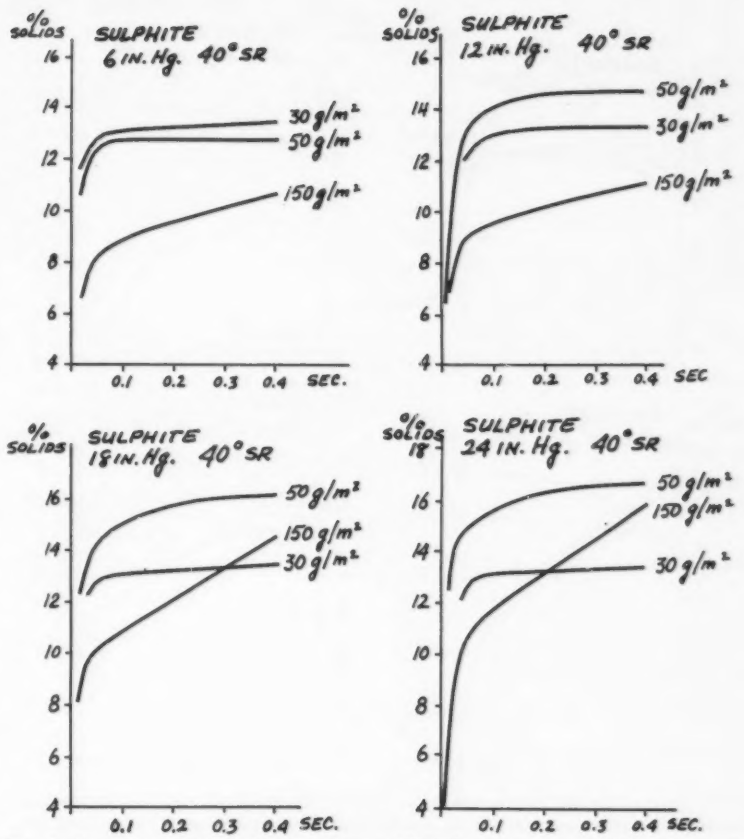


Fig. 4. At an intermediate beating degree (40°SR), curves show solids content as function of drainage time for various basis weights.

Results of Experimental Work

Our experimental method gave an initial dryness very close to a constant, while the final dryness gave a measurement of the dewatering resistance.

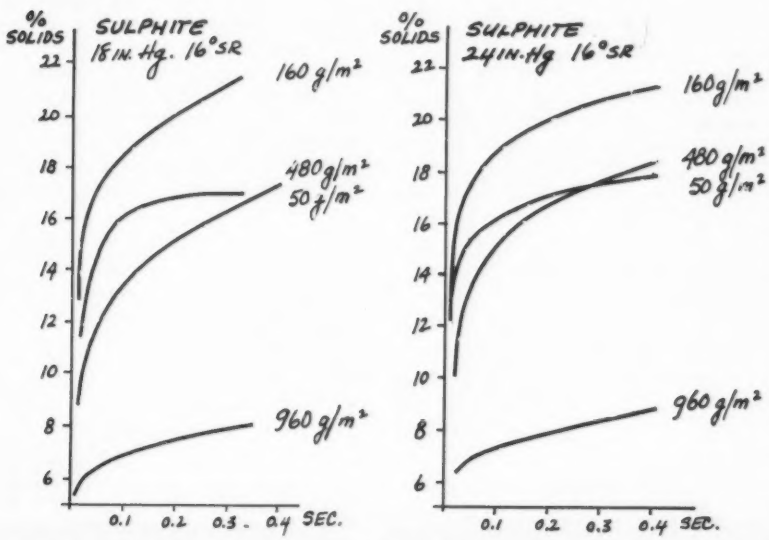


Fig. 3. Solids content vs. drainage time at 16°SR beating degree. Vacuum increased to 18 inches Hg. and 24 inches Hg.

1. INFLUENCE OF BASIS WEIGHT

To study the influence of basis weight we used only unbleached sulphite and worked at 16°, 40°, and 60° Schopper Riegler. There were certain limitations that prevented using the full range of basis weight for each beating degree; at 16°SR the basis weight was varied from 50 gms./sq. meter to 960 gms./sq. meter; at 40° the range was only from 30 gms./sq. meter to 150 gms./sq. meter; at 60° SR the range was reduced to 30 gms./sq. meter and 50 gms./sq. meter. Even so the results obtained gave the necessary information. For free stocks the method works with extremely low basis weights. However, at the relatively high beating degree of 60° SR, it was not possible to produce a sheet with a basis weight of 50 to 70 gms./sq. meter.

In Figures 2, 3, 4, and 5 are shown curves of final dryness for different drainage times, obtained at different vacuums. These figures show that by

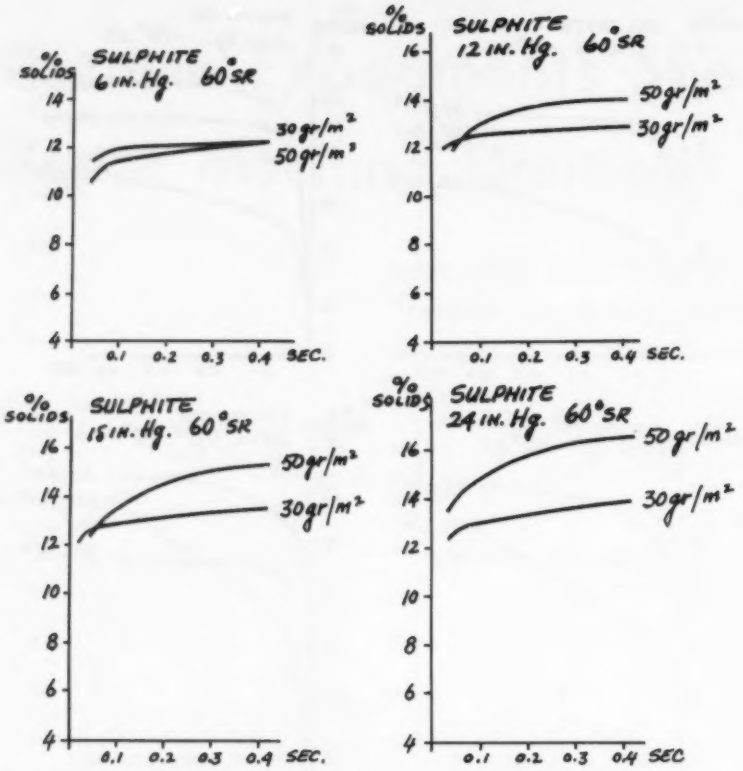


Fig. 5. At a relatively high beating degree (60° SR), curves show solids content vs. drainage time. It was not possible to produce sheets of higher basis weights.

increasing the vacuum and the drainage time the final dryness is also increased. The relationship between basis weight and final dryness for four different vacuums at a constant drainage time of 0.2 seconds is shown in Figure 6. By increasing the basis weight in nearly all cases, the final dryness starts to increase and then drops after a maximum. The only exception was found at a vacuum of 6 inches Hg. and at high beating degrees. Figure 6 also shows the basis weight at which the final dryness is highest for the same drainage time and that with increase of vacuum the per cent solids rises. It can also be seen that with very high basis weight and with free stock, vacuum has little influence on the per cent solids.

2. INFLUENCE OF BEATING DEGREE

From the curves, some conclusions can also be drawn about the influence of beating degree. For basis weights of 50 gms./sq. meter and vacuum of 24 inches Hg. Figure 7 shows the relationship between the drainage time and final dryness and the amount of air (in liters per square decimeter) which is needed to obtain this. If the beating degree is increased and drainage time held constant, final dryness will be lower. When drainage times are similar, the curves show higher air quantity requirements when stock is beaten less. This means that on a paper machine, for free stocks to arrive at a certain final dryness, it is necessary to go faster or the drainage zones have to be narrower. This also means shorter drainage times and lower power consumption for the vacuum equipment.

At two different basis weights, 30 gms./sq. meter and 150 gms./sq. meter, two experiments were carried out in order to compare differences in beating degree. (See Figure 8). At 30 gms./sq. meter it was found that beating degrees of 40° and 60° SR could be compared, while at 150 gms. a comparison could be made between 16° and 40° SR. At 150 gms. basis weight it can be seen that as the degree of beating is increased the per cent solids obtained is less.

3. INFLUENCE OF VACUUM

It was previously mentioned that as vacuum is increased, the final dryness also steadily increases, but it should be noted that the air quantity is also increased. In Figures 9 and 10 (for sulphite with a basis weight of 50 gms./sq. meter and a beating degree of 40° SR, and also for a roto paper furnish at 67° SR) the relationship between drainage time and the final dryness or the measured air quantity is given. From these curves it is possible to gain a general impression of the value of the vacuum drainage equipment.

For example the dryness of 15 per cent shown for the sulphite paper in Fig. 9, required vacuum of 18 inches Hg. and a drainage time of 0.3 sec. for an air quantity of seven litres/sq. decimeter. If the suction is changed to 24 inches Hg., then the drainage time required to reach the same dryness of 15 per cent would decrease to only 0.12 seconds and the air quantity used would be reduced to 4 litres. Thus by increasing vacuum, speed could be increased, and at the same time the air volume need not be so large.

In a similar manner the relationship of roto stock in Figure 10 changes. For example for a final dryness of 20.5 per cent, before the sheet reached the suction couch on the paper machine, it would be necessary at 18 inches Hg. to have a drainage time of 0.2 seconds. With an increase of vacuum to 24 inches Hg., then the drainage time drops to 0.09

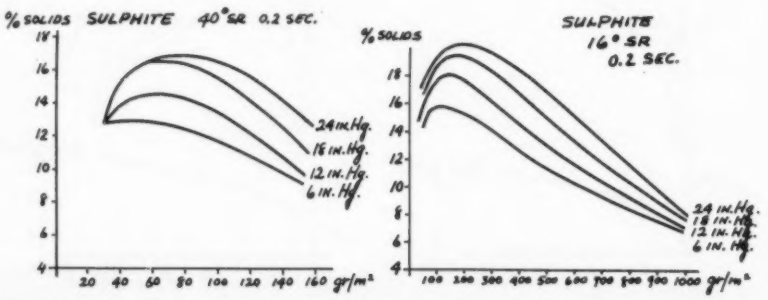


Fig. 6. Relationship is shown between basis weight and solids content for different vacuums at a constant drainage time.

seconds and the corresponding air volume goes from 5.25 litres to 3.2 litres.

From the curves presented, we can say that by using a certain vacuum the dryness will reach a certain maximum, and even if we increase the drainage time, it will have relatively little effect. Using vacuum in the range of 6 inches Hg. the dryness increase levels off independently of drainage time; that is the air passes through the pores of the wet sheet.

For the roto stock, the dryness at the maximum is just over 23 per cent at a vacuum of 24 inches Hg. and drainage time of 0.3 to 0.4 seconds, but this has practically no importance because the air consumption is so great, and also a suction zone corresponding to this time would be too large for high speed machines. In this case shorter drainage times may be used although reduced final dryness figures must be considered.

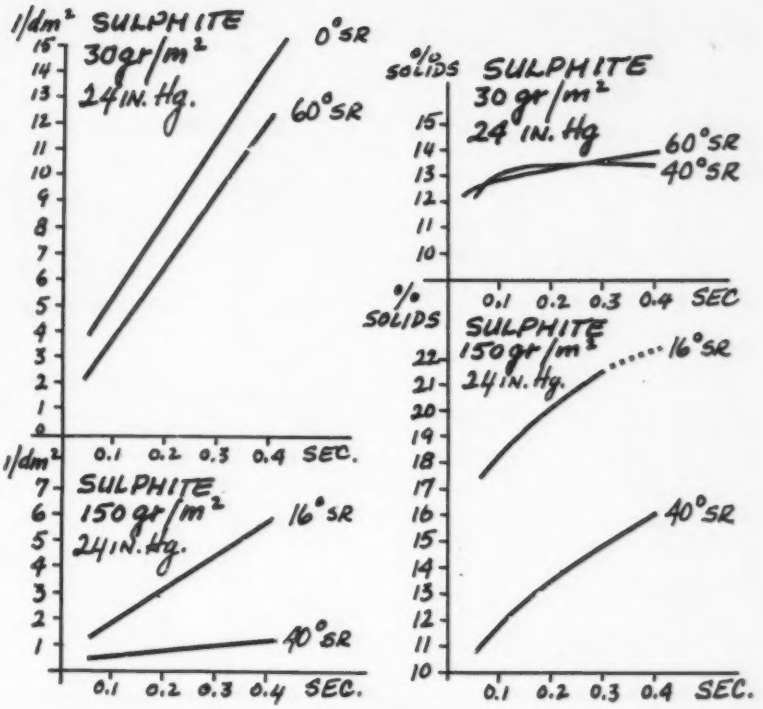


Figure 8. Solids content and air quantity versus drainage time for basis weights of 30 g/m² and 150 g/m².

Discussion of Results

1. SPECIFICATION OF EQUIPMENT

The large number of variables made it necessary to find a way of presenting the information so that an accurate picture of the situation can be obtained with reasonable rapidity. For presentation of the important factors, curves are shown with the final dryness as the abscissa while the air volume is the ordinate. Other variables are also indicated in Figures 11 and 12. In one case (Figure 11) we used a sulphite stock with a weight of 50 gms./sq. meter and vacuum of 18 and 12 inches Hg.; curves are shown for different degrees of beating and various drainage times. For the mixed furnish (Figure 12) similar to roto, with a beating degree of 67° SR and a basis weight of 50 gms./sq. meter, curves are shown for constant drainage times and constant vacuums.

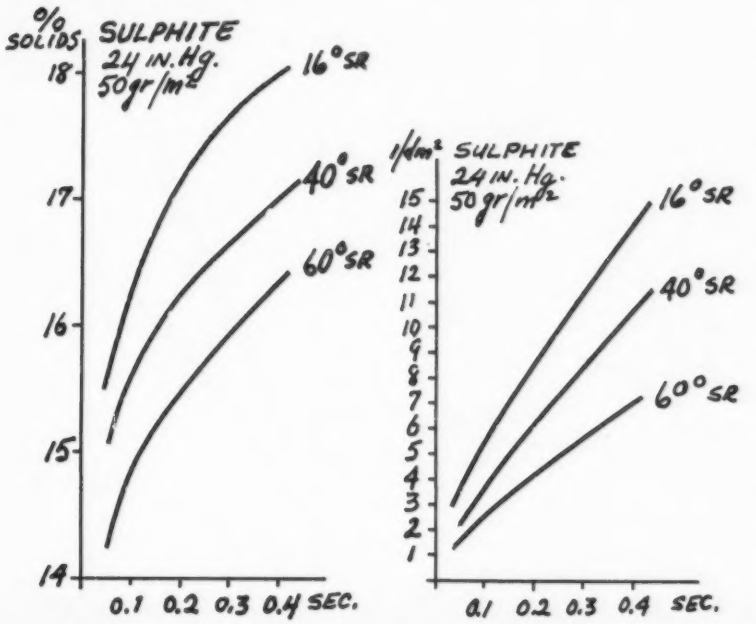


Fig. 7. Curves for various beating degrees showing solids content and air quantity (in liters per square decimeter) as related to drainage time at 50 g/m² basis weight.

These curves are extracted from a great number of final dryness results where the chosen figures are typical. For the sulphite sheet (Figure 11) at 50 gms./sq. meter one can see that for a vacuum of 12 inches Hg. and a beating degree of 60° SR, a final dryness of more than 13.9 per cent cannot be obtained. At 40° SR the corresponding figures are 14.6 per cent, and at 16° SR it is 15.6 per cent. To obtain a higher final dryness, then the vacuum could be changed to 18 inches Hg. In this case one finds that a maximum dryness of 15.2 per cent is obtained at 60° SR, 15.9 per cent is obtained at 40° SR, and 16.9 per cent at 16° SR. However, if the drainage times are held constant at 0.3 sec., then air consumption increases from 5.4 litres to 7.5 litres and up to 10.3 litres per unit area for the 16° SR stock. The power consumption for vacuum dewatering equipment will rise at the same time as we obtain

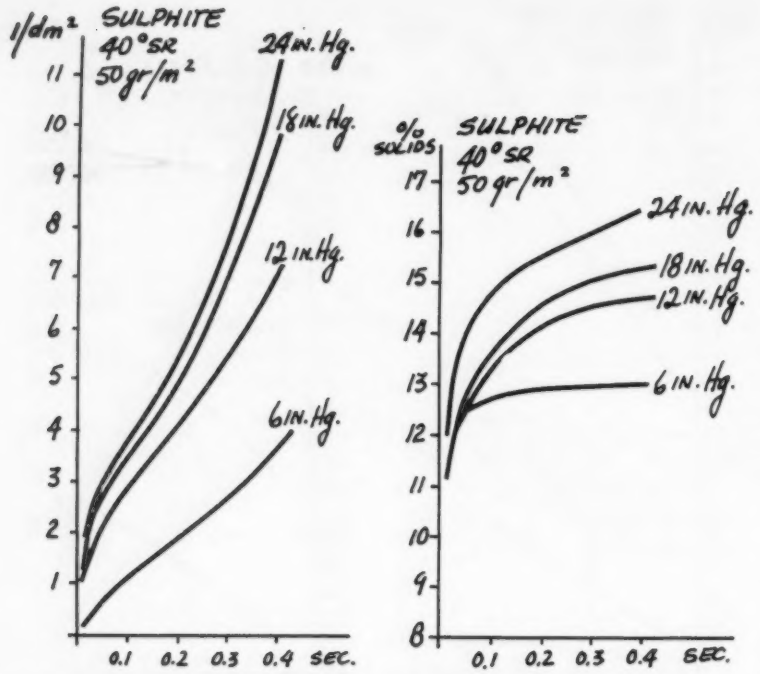


Fig. 9. At an intermediate beating degree and various vacuums, curves are shown for air quantity and solids content vs. drainage time for sheets of 50 g/m² basis weight.

the higher final dryness.

A discussion similar to the above would also hold true for the curves on roto stock (Figure 12). However, instead of curves for different beating degrees, curves for different vacuums have been superimposed on the plot.

2. INFORMATION IN THE LITERATURE

The figures found concerning air consumption may now be considered with regard to installations on machines, which will pull air through the stock layer. However, it is necessary to point out that there is more air to be dealt with in this case, that is the air representing the losses of holes and leaks. The losses of the suction rolls can be calculated, but leaks cannot. With good fitting boxes, leaks can be neglected and one may consider only the air pulled through the wet paper.

Our equipment enables us in each case to separately check certain physical characteristics and thus to determine the required relationships so that vacuum dewatering equipment may be sized with confidence. Our results agree with others in this field in that the amount of vacuum is important to arrive at a certain final dryness. Also our findings agree in that an increase in air quantity alone will not raise the final dryness.

The influence of groundwood fines was not checked by us. The results could be in the same direction as increase of beating. We obtained higher dryness for free stock, and a higher degree of beating was not an important difference for stocks of 40° SR to 60° SR, whereas another worker found that there was a decrease of dryness with increase of fine fibers. This difference in results is undoubtedly related to the details of the experimental equipment used.

Conclusions

Our results show that the porosity of a wet fiber layer depends on the formed character of the fiber stock. Especially interesting was the comparison of stocks beaten with stone and metal bars. Different stocks beaten to the same degree were compared and differences in the beating were discovered. One point was that air consumption was different; with pulp beaten by stone tackle, air consumption was always smaller than for that beaten with metal tackle. At this time a deeper discussion of these interesting experiments cannot be attempted. There is a possibility that by use of our vacuum drainage equipment, the differences in the formed character of stock could be determined.

In all previous work on the principle of vacuum dewatering, the suction procedure has always been important. On the wire of the paper machine, vacuum dewatering always takes place step wise over the flat boxes and the suction couch, whereas we obtained experimental results on the basis of continued suction. It is not necessary to discuss the dif-

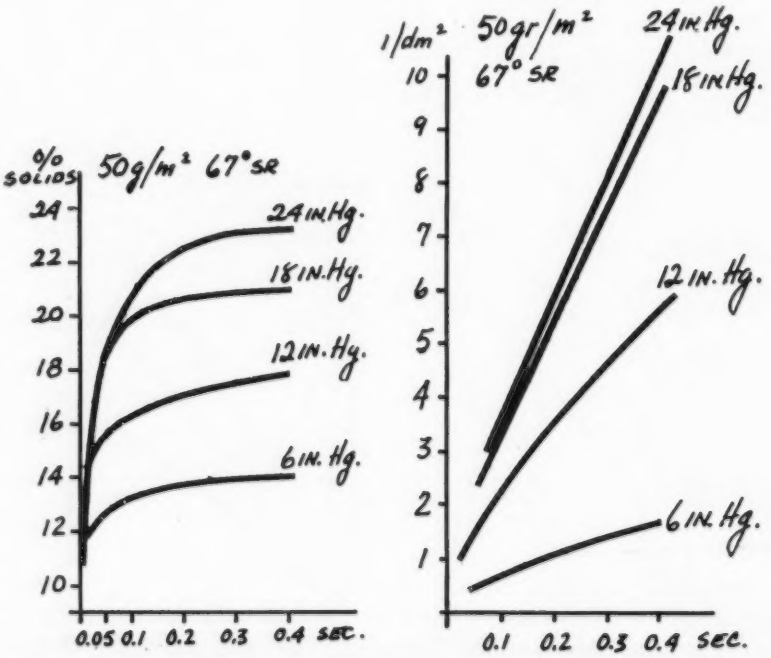


Fig. 10. Relationship between solids content and air quantity vs. drainage time at several vacuums for roto stock.

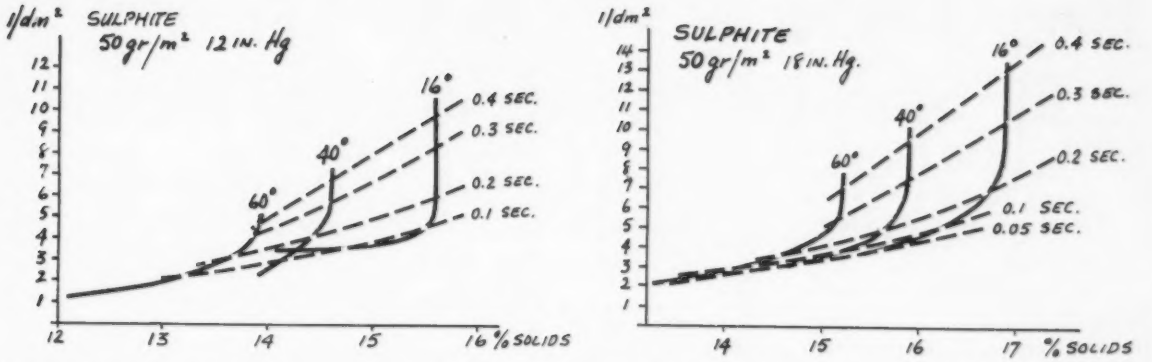


Fig. 11. Relationship between air quantity, solids content and drainage time for low, intermediate and high degrees of beating at two different vacuums.

ference between the two procedures because the same basic tendencies will be found in both cases. We found that with continued suction, higher air quanties were used to obtain the same final dryness because the suction time required was slightly longer. It is clear that theoretically vacuum dewatering should be a continuous process, but unfortunately there have always been some practical objections in production work.

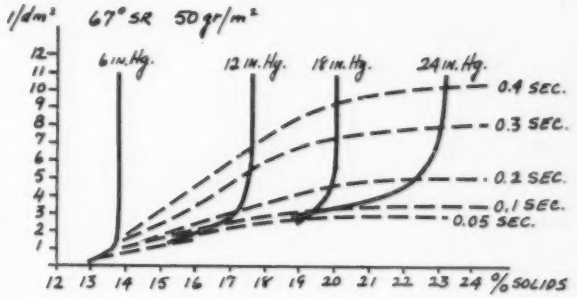


Fig. 12. At a high degree of beating, relationship is shown between air quantity, solids content and drainage time for several vacuums on roto stock.

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Ring Grinder Maintenance Influenced By Start-Up and Operating Methods

Successful use of the ring grinder has been the result of adhering to certain rules of operation and maintenance. This article outlines these.

Herbert L. Wendshuh,
Consultant,
Appleton Machine Co.

Since World War II, the ring grinder has enjoyed greater popularity in this country than any of its cousins, the pocket, magazine, and chain grinders. This is especially true of new groundwood installations.

The ensuing discussion centers on the maintenance of the Roberts type (gear-driven) ring grinder. However, many statements contained herein are concerned with starting-up and with running this type of grinder. It is felt that to adhere to certain principles in normal day-to-day operation of a machine is a form of preventive maintenance, and they are thusly noted here. The reader is further reminded that this discussion does not include the maintenance of pulpstones. This is a large and complex subject, and will be covered in a separate future article of this series.

START-UP

Preparations for Starting

1. Clear machine of all tools, bolts, nuts, and other foreign materials; grease and oil all parts as required.

2. If stone has not been trued before installation in grinder, it should be done before any adjustments are made.

a. Be sure shim doctor and feed ring are well clear of stone

b. Check main bearing lubrication

c. Jog motor to check stone-direction of rotation

d. Set burr in lathe arm well clear of stone

e. Bring burr to stone over one edge

f. Start main shower

g. Start main motor and bring up to speed.

h. Set burr down to cut high spots on stone and traverse stone. Keep feeding burr into stone until stone is round

i. Put pattern on stone

j. Shut machine down.

3. Set feed ring clearance to stone —(should be ⅛-¼ inches)

4. Set shim doctor blade clearance to stone—(approximately 1/32 inches)

5. If any readjustment of stone and feed ring clearance is made, be sure to check shim doctor blade clearance

6. Start, stop, reverse and stop feed ring to check operation

7. Wash out grit and dirt from grinder

8. Check lubrication to bearings.

Starting

Starting an Uncharged Grinder

1. Fill chamber with hot water

2. Start stone and bring up to temperature

3. Stack wood in grinder neatly

4. Start feed ring—open showers.

Stopping a Grinder

1. Stop feed and reverse rotation

2. Stop stone after grinder has ground itself free of wood in the nip

3. Immediately stop feed ring.

Starting a Charged Grinder

1. Refill chamber with water if water has been drained

2. Jog feed ring in reverse to make sure stone is free

3. Start stone

4. Open showers and start feed ring forward

5. If temperature control is installed, check for temperature change

Log Jamming

In case of a log jam and stone is running, reverse feed ring. If necessary, rearrange logs.

In case of a log jam or complete power failure, and feed ring and stone have stopped, free up packing plates on shaft and, to give a slight increase of nip distance, back off case slightly with adjusting screw. Then inch feed ring in reverse with stone idle. Reversing of feed ring will cause stone to revolve in reverse direction. Continue inching feed ring in reverse only until stone stops revolving. After inching reverse, reset case to previous setting. Start stone, open showers and start feed ring forward. If any logs have become lodged or jammed endwise, they must be rearranged.

Always maintain proper water level in the grinder while stone is turning and logs are in the grinder. A log in a dry grinder with stone turning can result in tremendous nip pressures and serious damage to the feed ring or stone shaft.

General

Never adjust or move case without first loosening locking screws on seal plates on both sides of case. Make sure seal plates are free. This procedure should be followed any time the case is moved, including closing of nip clearance after case is adjusted. Before tightening seal plates, check seals with feeler gauge to be sure stone shaft is centered.

Best results are obtained when the charging chamber is filled with logs

Typical modern installation of ring grinders.

approximately level with the bottom of the charging opening. Port holes in feed ring should be kept clean and open.

Years of experience show that mills that have achieved successful operation have diligently followed these rules:

Thoroughly train operators

Thoroughly train maintenance crews

Set up preventive maintenance schedule

Stop grinder every 8 hours and wash down entire inside

Determine and enforce frequency of stone dressing

Keep logs neatly stacked in charging chamber and maintain level at charging door.

MAINTENANCE

The following general maintenance notes should be followed for best operation:

Stone Mounting

The stone shaft on the newer grinders is furnished with a double lead thread rather than single lead for ease of removing the stone. Most mills have adopted grouting rather than shims. If shims are used under the flanges, select a material which will not disintegrate under the temperature and moisture conditions encountered. When assembling the flanges, make sure they have not been screwed up too tight on the cold stone, otherwise, the stone will be overstressed at the increased operating temperatures. The right and left hand threads on the shaft will do the final clamping when the stone is rotated. Check the direction of rotation to make certain that threads will not be unscrewed due to rotation. Use a good caulking compound to protect threads from serious corrosion. When stone is placed in operation, it should be brought up to near operating temperature before grinding. Submerge stone in hot water, about 150° F. and run idle until stone reaches operating temperature.

Stone Shaft Bearings

Grinders furnished in the last 10 years or more are equipped with self-aligning spherical roller bearings. Nearly all incorporate a circulating oiling system. Do not use heat to mount a tapered bearing. The shaft is prepared for hydraulic mounting and removal. Operating temperatures up to 150° F. are safe and allowable. When mounting a bearing, read instructions on bearing assembly drawing for removal of diametral clearance. Do not attempt to cool a bearing with a water hose. This may cause water to be forced through the sealing members. Use a high quality mineral lubricating oil having a viscosity of 1,200 to 1,800 at 100° F. Circulation should be approximately one pint per minute per bearing.

Stone Dressing

Since the quality of pulp varies most with the condition of the stone surface, maintaining the desired condition becomes important to good operation. Keep the truing lathe clean. Wash before using. Maintain proper adjustment of burr holder and crosshead ways. Keep all moving parts well lubricated. Usually, the burr is set to the depth desired outside, or just before, the edge of the stone and then run over the surface of the stone. No definite recommendations can be made as to the frequency of dressing. Frequency of sharpening is determined by mill operation. After dressing stone, check nip and shim doctor clearance.

Feed Ring Bearing Shoes

These shoes are made from a graphited formaldehyde resin, presaturated in hot oil. These shoes are lubricated through grease fittings located on the outside of the case at the shoe race area. If manual lubrication has been furnished, each fitting should be fed at least twice per shift. If automatic, set the volume and timer as desired. In the manual type, keep the grease well, just above the horizontal split in the case, well filled with a water-resistant block type grease. At the fittings for both manual and automatic, use a gun type soda soap grease, or a mixed soap base. Usually, a chatter, or jerking, of the feed ring can be eliminated through additional greasing.

Deckle Straps

This is a misnomer, as the deckle strap is actually the sealing strap between the slowly revolving feed ring and the stationary bottom half of the gear case. In effect, it is a band type brake. Never adjust too tightly. Nuts on the upcoming side need only be finger-tight when grinder is in operation. Too tight a strap will result in excessive wear and leakage.

Feed Ring Gear and Pinion

The feed ring gear is mounted on the feed ring. This assembly, due to its relatively enormous size, is bound to change shape when subjected to the grinding load, and the fact that it is constantly changing temperature due to entering and leaving the hot stock in the grinder pit. Thus, care must be exercised in lining up the gear and pinion. The pinion and gear are checked for mesh and set at assembly, as well as run in at accelerated speed under no load, prior to shipping. These are not actual operating conditions and a correction may be necessary immediately. Another check should be made after the grinder has operated under load with 50 to 60 hours operation time. Further periodic inspections during the early hours of operation will result in a long life of the gear and pinion. A drip oiler is located

above the pinion and drips oil at each end of the pinion (about 2 inches from the end)—two to three drops per minute. A lead base or extreme pressure oil is recommended.

Reduction Unit or Reducer

Use a high quality mineral oil in the gear case and maintain levels indicated. Viscosity—1,200 to 1,800 at 100° F. The larger gears are submerged in oil. The smaller ones, as well as the bearings, are lubricated through a flood system. Since this case is mounted at the top of the grinder, heat and moisture, naturally, will be encountered. A water cooler is provided and the oil within the case should be around 100° F. Check the temperature gauge. The moisture will result in condensation. Remove water from case through drain plug. The V-belt pulley outside the case can be freely turned by hand, under no load conditions.

Stone Shaft and Intermediate Shaft Couplings

Usually, these are gear type couplings. Periodic lubrication is necessary. Make sure that misalignment between grinder and motor is not excessive. Be sure that space between end of grinder shaft and end of motor shaft is as specified on installation drawing; otherwise, a thrust condition may be encountered, causing premature failure of the grinder, or motor bearings. On gear type couplings use oil having a viscosity of 150-300 at 210° F.

Feed Ring Motor and Drive

Installation, operation, and care of this unit should be according to the instruction manual furnished by the manufacturer of the motor. The variable speed drive consists of adjustable speed motor connected through V-belts to the pulley on the gear case, a control unit, and an operator's control station. Under normal conditions, the drive requires only the customary care given any motor or generator. Regular monthly inspections should be made, giving special care to the brushes and the commutator. Dirt, grease, oil, or water, should be kept off the electrical parts, especially the commutator. The electronic tubes normally should be removed and tested on a regular schedule. Replace marginal tubes. Test at approximately six month intervals. The power rectifier tubes should have visual inspection and if the anode plates or grid shields show excessive burning or dis-coloration, the tubes should be replaced. The arc is also a good indication of the condition of the tubes. As a reminder, refer to the instruction manual furnished by the manufacturer of the drive.

A reversing switch is included with the drive equipment. It should be interlocked so that feed ring can be reversed with stone running or stopped. This switch should be mounted on a column or wall adjacent to the grinder within easy reach of the operator, but not on the grinder itself, as switch is not waterproof.

Recommended Spares—Minimum Insurance

One (1) stone and shaft assembly complete with bearings, housings, and coupling half

One (1) spherical roller bearing only for the stone shaft

One (1) stone burr assembly, complete

One (1) nut for traverse screw on lathe

One (1) worm and worm gear ring for reducer

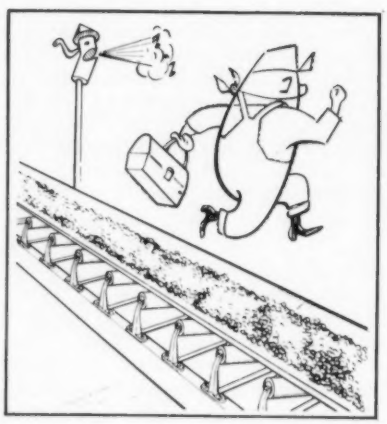
One (1) lubricating oil pump and motor for reducer lubricating system

One (1) lubricating oil pump and motor for the stone shaft bearing lubricating system.

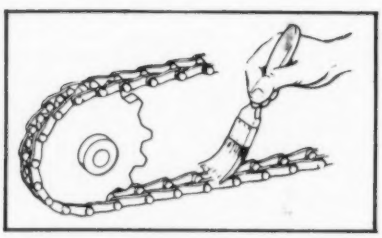
For spares for adjustable speed feed ring drive, consult instruction manual.

CONVEYOR TIPS

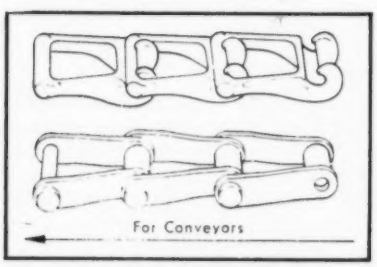
. . . timely information that will help you get maximum performance and life from your conveyors



No "Whistle Stops." To assure long life wherever possible, conveyors or elevators should be empty when starting and should be stopped only when again empty. Starting under load not only places extra strain on the equipment but frequently contributes directly to breakdowns. This is particularly true when handling bulk material that tends to set or freeze, since a very great pull may be required to break the load loose. Elevators, unless empty, will run backwards. A backstop can be provided to prevent this. Elevators should be operated at regular intervals during any extended down period to avoid freeze-ups (at least once a week, and preferably turned over once each day when sticky materials are handled).



Lube for longer life. Cast chains, such as pintle, H-Type and Ley Bushed, should be swabbed with SAE 30 or 40 oil at periodic intervals. A shutdown or inspection period is generally the best time to perform this operation. The lubricant should be applied at the chain joint.



Backward is bad. Offset sidebar conveyor chains should operate with open end of link forward. Since shaft centers normally are long and speed slow, flexing of chain is less frequent and wear is more likely to occur on head sprocket.

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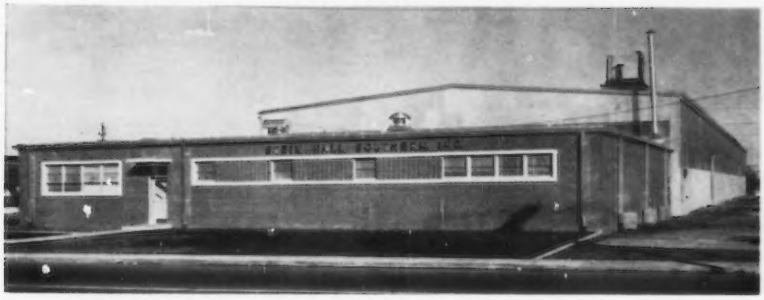
PJT NEWS OF SUPPLIERS



Stein Hall & Co., Inc., New York, dedicated a new subsidiary, Stein Hall Southern Inc., in Charleston, South Carolina on November 20.

The plant will process guar gum. The processed product is known as *Jaguar*®. Stein Hall Southern will also produce starch products for warp sizing in the textile industry as well as modified Hallmark® tapiocas and galactomannan gums (Lycoid®) for the paper industry.

The Yale & Towne Manufacturing Co., has appointed George A. Wulf, assistant to the senior vice president, manager of the Philadelphia materials handling sales and service branch of Yale Materials Handling Division.

Mr. Wulf began his career with Yale & Towne in 1946 as a materials handling sales analyst. In 1950, he was transferred to the Yale Materials Handling Division in Philadelphia where during five years he advanced through various management positions to become assistant to the vice president.

Borden Chemical Co. has promoted Maurice S. Letourneau, New York district sales manager for its Polyco-Monomer department, to eastern district sales manager.

In his new position, Mr. Letourneau will be responsible for directing the sale of Borden's full line of polymers for the textile, paper, paint and adhesives industries in the new England, New York, Philadelphia, and Southern market areas.

A graduate of the Institute of Textiles and Technology, New Bedford, Mass., Mr. Letourneau joined Borden Chemical in 1956 as technical sales representative in New England. He was transferred to an area encompassing South Carolina, North Carolina and Virginia, where he served until his appointment as sales manager for the New York District.

Industrial Bio-test Laboratories, Inc., Northbrook, Ill., announces a major expansion program to meet the increasing need for toxicological services by the chemical, food, drug, and cosmetic industries.

The construction of a new toxicological research laboratory, which will be completed early in 1960, is under way next to its present site in Northbrook.

The new facilities will be air-conditioned and humidity-controlled and will provide an additional 10,000 square feet for animal studies. Bio-Test is also adding another laboratory for the determination of extractables in food packaging materials.

National Starch and Chemical Corp., has announced that steadily increasing demand for chemically modified corn starches is a prime factor in the company's plans for a major expansion of corn milling operations at its Indianapolis, Ind., plant.

J. F. Fitzgerald, vice president of starch sales, said that when completed sometime late next year, the new equipment will expand National's present corn wet milling capacity by an additional one-third bringing the yearly grind to seven million bushels.

To be added are latest type facilities for corn grinding and separating, storage, steeping and by-product processing. Extra plant space will also be constructed to house the above apparatus as well as attendant drying and packing facilities which will be installed to handle the increased quantities of processed corn starch.

Hercules Powder Co. has created a new operating department to be known as the International department it was announced by Albert E. Forster, Hercules president.

The newly created department will include the work of the present export department, and will have equal status with the company's six industrial departments—Cellulose Products, Explosives, Naval Stores, Paper Makers Chemical, Synthetics, and Virginia Cellulose.

Mr. Forster said the organizational change, which is effective immediately, reflects the increasing importance of the company's manufacturing and sales activities abroad, and the tremendous potential of business in other countries.

At the same time, Mr. Forster announced that Henry A. Thouron has been named general manager of the International department. Mr. Thouron, a member of the company's board of directors, has been general manager of Hercules Synthetics department since 1955.

David M. Houston, director of the Export department since 1945, had planned to retire early in 1960, but has consented to remain in an advisory capacity during the formative period of the new International department, Mr. Forster said.

Succeeding Mr. Thouron as general manager of Hercules Synthetics department is Donald H. Sheffield, who has been assistant general manager of Synthetics since December 1955. The appointment is effective immediately.

Born in Springfield, Minn., Mr. Sheffield majored in chemistry at Carleton College, obtained his Master's degree in organic chemistry from Ohio State University, and in 1953 attended Harvard Business School's Advanced Management Program.

In 1929, he entered the employ of Hercules Powder as a chemist at the experiment station, then located in Kenvil, N. J., being transferred shortly afterward to the company's naval stores plant in Brunswick, Ga.

In 1940, Mr. Sheffield was transferred to the home office in Wilmington as assistant to the director of operations of the Naval Stores department. He was manager of development from 1948 to 1951, and was

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CHAMPION PAPERS

D. D. JONES CORP. member BELOIT group PITTSFIELD, MASS.

Jones
PULP MILL EQUIPMENT AND STOCK PREPARATION MACHINERY

named assistant director of operations early in 1952.

When Hercules branched into a field new to the company, that of oxychemicals, in 1955, Mr. Sheffield was named to head the division.

P. L. Penaud

H. G. Osolin

CIBA Co., Inc., announces establishment of a Pigments division. Administrative, sales and technical activities of the new division will be located in the new building at Fair Lawn, N. J., occupied by the company earlier this year. CIBA Co., Inc., is a subsidiary of CIBA, a world-wide symbol of originality and quality in research.

The Pigments division will handle a broad range of organic pigments, pigment dispersions and soluble dyes for use in the coatings, plastics and printing ink industries. The range of products available includes a number of specialties developed by CIBA.

P. L. Penaud is manager of new division with H. G. Osolin in charge of technical operations.

Mr. Penaud is a science graduate of the University of Lyon in France. He comes to the CIBA organization in the United States as manager of the Pigments division after having been associated in CIBA's pigment activities in both technical and sales capacities in Western Europe.

Mr. Osolin, supervisor of all the division's technical activities here, holds a degree in chemical engineering at the Swiss Federal Institute of Technology. He has hitherto been in charge of the pigments application, technical service and control laboratories of the parent company, CIBA, Ltd., in Basle, Switzerland. In this function, he has participated from the very beginning in Ciba's pioneering developments in that field.

Corn Products Co. has appointed five vice presidents for the new and re-organized Corn Products sales division. They include Robert W. Bond, vice president, market planning; Darrel K. Brickley, vice president, sales services; Jenkin J. Jones, vice president, refined and processed oils; John M. Krno, vice

(Continued on page 46)

CHAS. T. MAIN, INC.
ENGINEERS
PROCESS STUDIES, DESIGN, SPECIFICATIONS, CONSTRUCTION SUPERVISION
PULP AND PAPER MILLS
STEAM, HYDRAULIC AND ELECTRICAL ENGINEERING
REPORTS, CONSULTATION, VALUATIONS
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ENGINEERS
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Timber Estimators and Foresters
C. D. SHY & COMPANY
1130 Commerce Title Building
Memphis 3, Tennessee

TWIN SOUTHWORTH INSTALLATION

One of two identical finishing room installations at the St. Regis Paper Company.

Cuts Finishing Costs

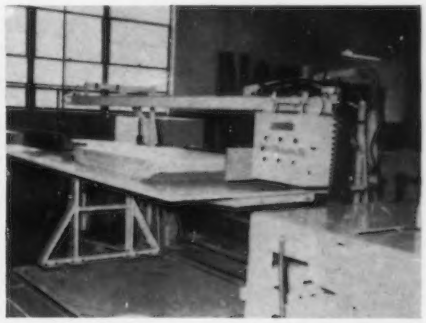
at ST. REGIS

FULLY EFFICIENT FINISHING ROOM MECHANIZATION MINIMIZES WASTE...AFFORDS MAXIMUM PRODUCTIVITY

Mass production trimming achieving lower finishing costs through greater efficiency, greater productivity of manpower and machines, with less waste and accident hazard. This is the success story of still another low-cost, custom-engineered Southworth installation based on individual plant requirements.

Photos Courtesy of St. Regis Paper Company

1. Paper being transferred from Straddle Lay-Up Table to Inventory Table.



2. Paddle Conveyor in ready position for demand Trimmer charging.

3. Loading Straddle Stacker Table from Trimmer.

4. Straddle Stacker discharging paper to Skid.

SOUTHWORTH MACHINE CO. since 1890

*PATENT PENDING

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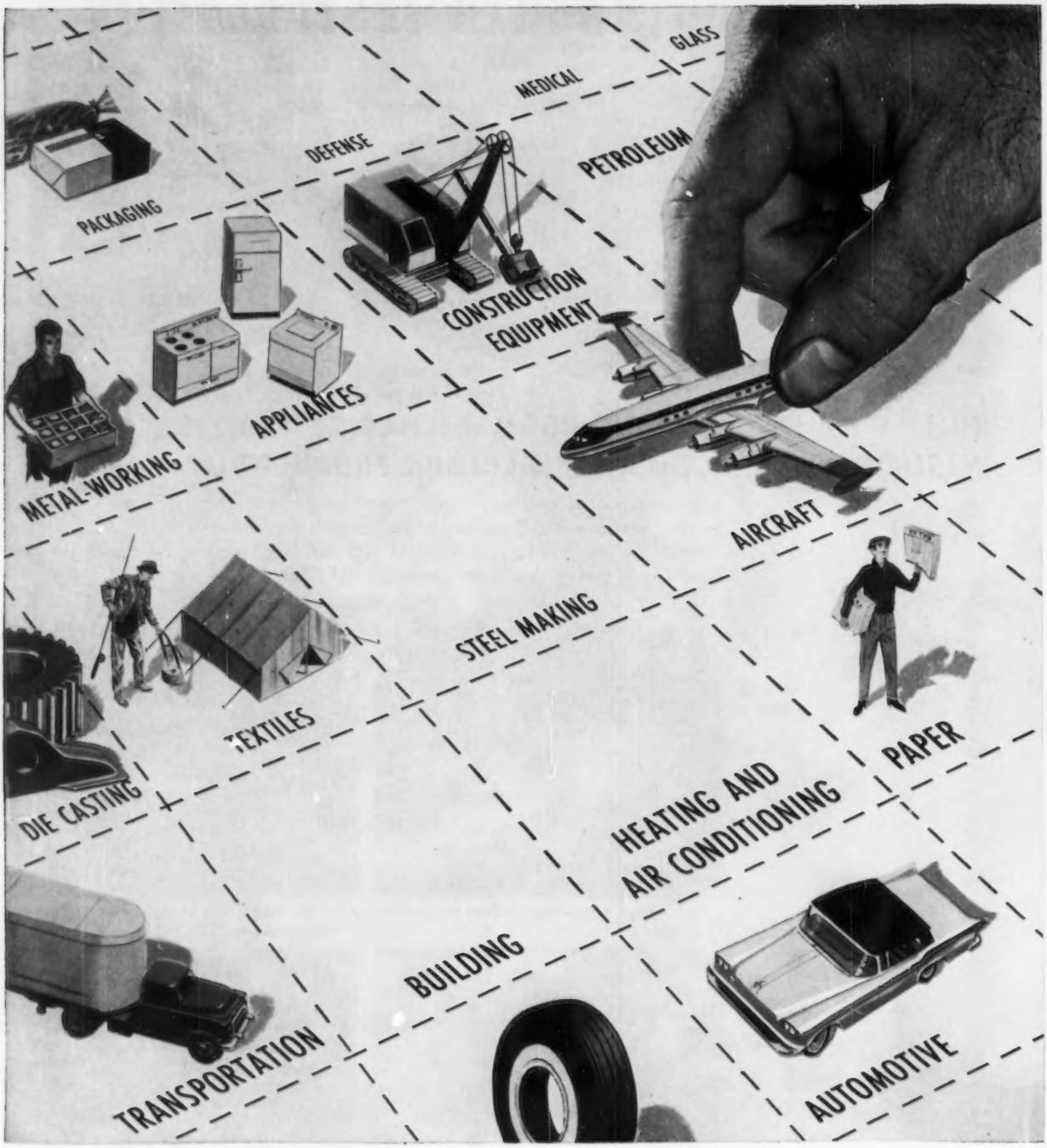
SOUTHWORTH MACHINE CO.

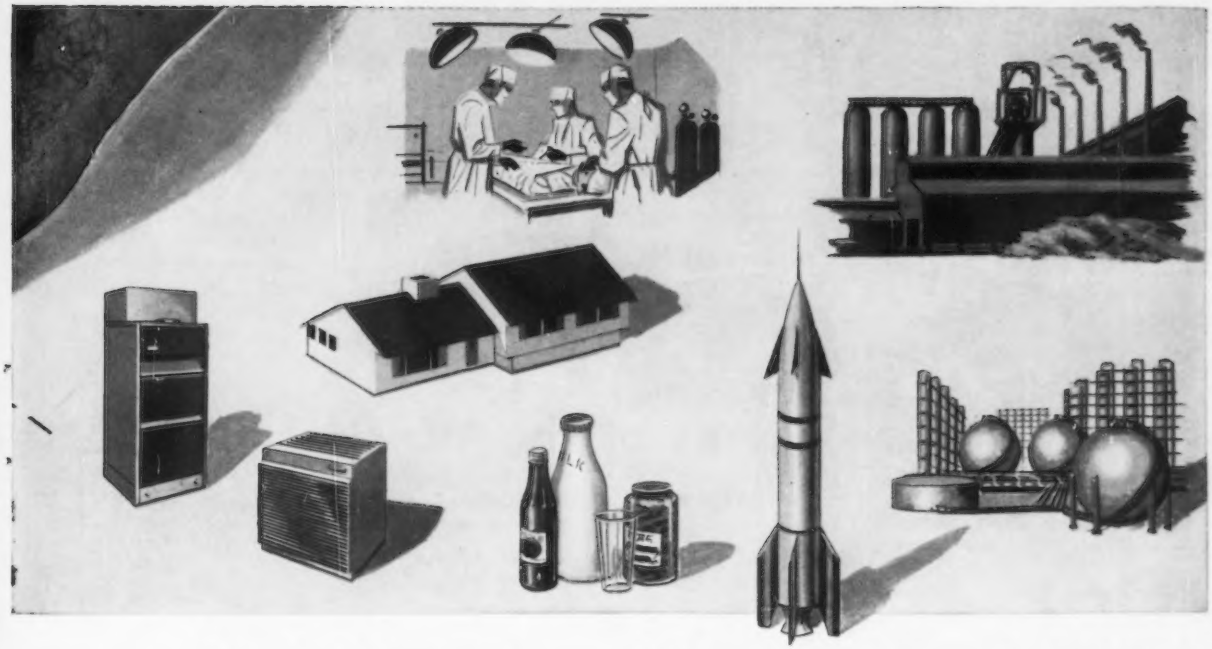
2712 WARREN AVENUE, PORTLAND, MAINE, SPruce 4-1424

Paper Conditioners; Automatic Skid Lifts; Lift Tables; Air Flotation Tables; Skid Turners; Hand, Foot, Motor Driven Punching Machines; Humidifiers; Envelope Presses; Punch Heads; Tabbing Knives and Corner Cutters plus Custom Built Equipment.



The checkerboard above shows several holes in the pattern. These are now filled with the acquisition of Surface Combustion, its divisions and subsidiaries.

M-R
MIDLAND • ROSS CORP.



WELCOME!

J. O. Ross Engineering, specialists in designing and creating 'Engineered Atmospheres' for many types of industrial operations, extends a hearty welcome to Surface Combustion with its Janitrol Aircraft and Heating and Air Conditioning Divisions, and its subsidiaries, as the latest members of the soundly conceived, rapidly growing and purposely diversified organization serving many basic industries...Midland-Ross Corporation.

Surface Combustion and Ross have much in common in their respective services to industry traveling along parallel lines. The experiences and talents of each will be of immeasurable value to the other...with the customer benefiting greatly.

Surface Combustion, directly or through its divisions and subsidiaries, gets into the basic metal products and metal fabricating industries, petroleum refinery, glass, mechanical and marine fields...also residential, commercial and industrial buildings with its furnaces, heaters, and air-conditioning systems...into the aircraft and missile field with special heaters.

J. O. Ross will continue in its specialized service to industry...what it has been doing for close to forty years: designing and creating 'Engineered Atmospheres' for vitally important operations such as drying, curing, baking, conditioning, exhausting, humidifying, as well as for providing comfort heating and ventilating in work areas and adjacent factory offices.

• • •

If you would like to receive a more detailed report on this most recent acquisition by Midland-Ross Corporation, write to the Corporation at Executive Offices, 55 Public Square, Cleveland, Ohio for a copy of 'Quick Facts About Midland-Ross, Surface Combustion and Janitrol'.

J. O. ROSS ENGINEERING

Division Midland-Ross Corporation
730 Third Avenue, New York 17, N. Y.

ATLANTA • BOSTON • DETROIT • SEATTLE
LOS ANGELES • MT. PROSPECT, ILLINOIS

NEWS OF SUPPLIERS

(Continued from page 42)

president, sales promotion and development; and Henry M. Mays, vice president, feed and by-product sales.

The Corn Products sales division will be responsible for the sales and merchandising of all industrial products, including those previously handled by the Best Foods division.

J. A. Baldinger

C. R. Dean

Yale & Towne Manufacturing Co. announces the retirement of Elmer F. Twyman as senior vice president. His responsibilities for all the company's domestic and foreign materials handling equipment operations have been assigned to John A. Baldinger, vice president.

Mr. Baldinger, who is currently serving as vice president and general manager of the Yale Materials Handling Division in Philadelphia, will make his headquarters starting January 2, 1960, at the corporate executive offices in New York City.

Clyde R. Dean, presently general sales manager of the Yale Materials Handling Division, will succeed Mr. Baldinger as general manager. The division has plants at Philadelphia, Forrest City, Ark., and San Leandro, Calif., and produces and distributes Yale industrial lift trucks, tractor shovels and hoists.

Mr. Twyman is retiring, after 31 years of service with Yale & Towne, in accordance with the company's retirement plan. Since 1955 Mr. Twyman has directed Yale & Towne's world wide materials handling equipment operations, after having served as vice president and general manager of the Yale Materials Handling Division, 1950-1955.

Mr. Baldinger joined Yale & Towne in 1945 and in 1951 became general manager of its Automatic Transportation Co. Division, serving in this post for four years.

Mr. Baldinger was graduated from Williams College in 1938 and received a master's degree from the Harvard Graduate School of Business Administration in 1940.

Mr. Dean entered the materials handling industry in 1938 with the Hyster Co. at Portland, Ore., rising to export sales manager. He joined Yale & Towne in 1954 as director of export sales for the Yale Materials Handling Division, and became general sales manager in 1956. Mr. Dean was graduated from Oregon State College in 1938 with a B.S. in mechanical engineering.

Nalco Chemical Co., Chicago, has named Manfred W. Luthgens group leader, papermaking chemicals research. In addition to supervising research activity in current product areas, he will direct a broad research program, already underway, in developing new Nalco products for the papermaking industry.

Prior to joining Nalco, Mr. Luthgens was research group leader for West Virginia Pulp and Paper Co. He studied wood chemistry at the University of Hamburg, receiving a doctorate in science in 1956, and has done considerable research work for the German Wood Research Ass'n., and the German Institute of Wood and Cellulose Chemistry.

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Assn. Figures

(Production as per cent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

	Nov. 7	Nov. 14	Nov. 21	Nov. 28	Dec. 5
1959	94.6r	96.5r	96.2	93.7r	94.5
	Nov. 8	Nov. 15	Nov. 22	Nov. 29	Dec. 6
1958	92.3	91.2	91.0	87.7	91.6

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1959	87.8	90.5	93.2	94.4	95.3	95.6‡	84.6‡	96.0‡	94.7‡	97.3‡	95.4‡	—	—
1958	86.9	89.5	89.5	88.4	87.2	87.2	75.3	89.6	86.5	91.6	90.4	83.1	87.1

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1952	1953	1954	1955	1956	1957	1958	1959
Year to Date	90.7	93.7	92.3	95.9	98.5	91.1	86.9	92.6
Year Average	88.6	92.3	91.6	94.0	97.9	90.9	87.1	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available.

PAPERBOARD OPERATING RATIOS†—National Paperboard Assn. Figures

COMPARATIVE WEEKLY SUMMARIES

	Nov. 7	Nov. 14	Nov. 21	Nov. 28	Dec. 5
1959	94	95	95	91	86
	Nov. 8	Nov. 15	Nov. 22	Nov. 29	Dec. 6
1958	93	94	94	88	84

COMPARATIVE MONTHLY SUMMARIES

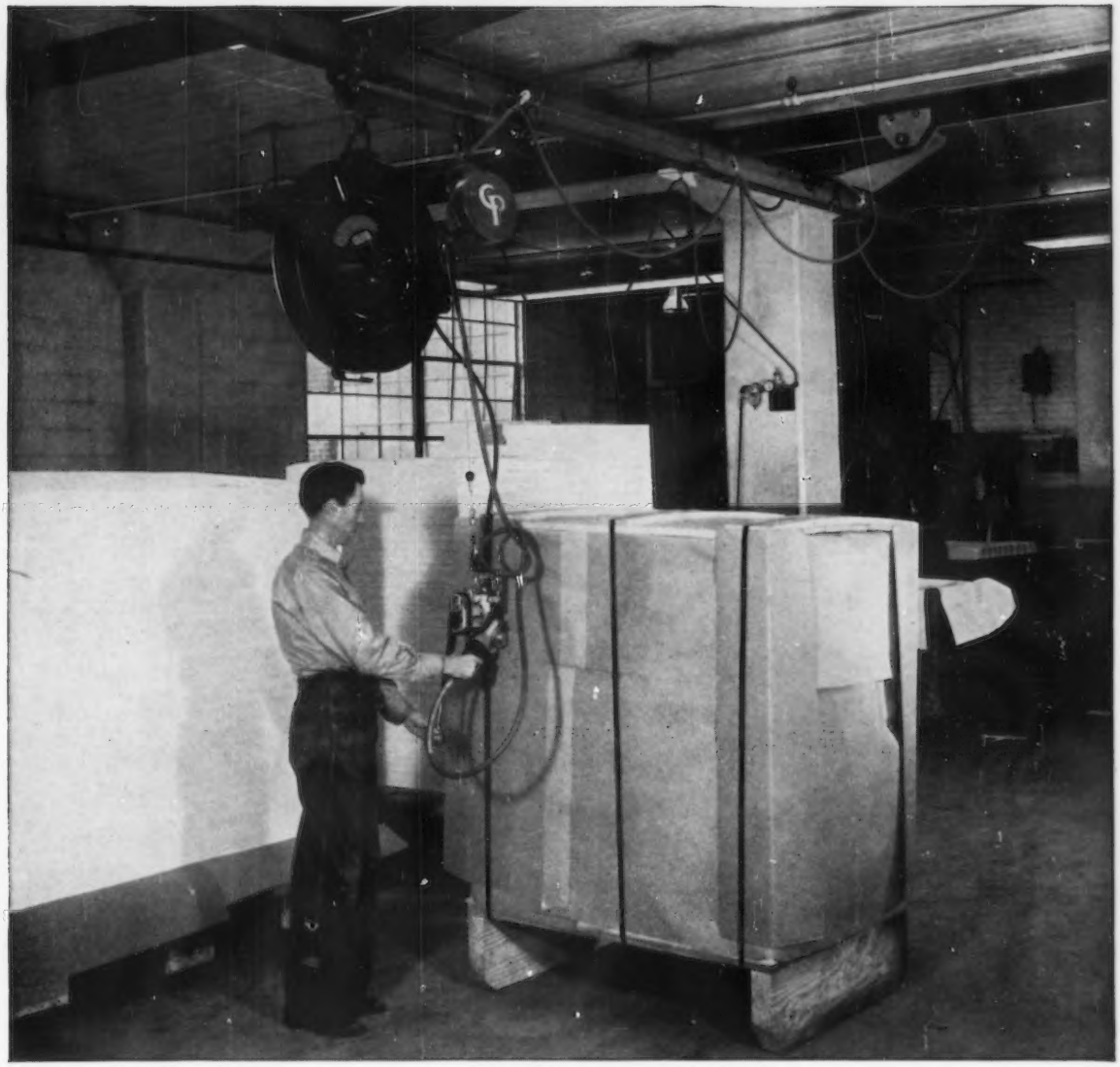
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1959	89	94	95	94	96	96	83	97	92	97	94	—	—
1958	84	86	87	84	85	86	76	93	90	95	93	77	86

† *Per cents of operation based on "inch-hours" reported on a 6-day basis to the National Paperboard Association.*

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Assn. Figures

ITEM	THIS WEEK ENDING *Dec. 5, 1959	LAST WEEK ENDING Nov. 28, 1959	CUMULATIVE TO DATE Jan. 1 to Dec. 5, 1959, incl.
% Activity	86%	91%	93%
TOTAL	295,929	310,853	14,945,057
Liner	99,845	101,592	5,192,454
Corrugating Material	47,660	49,223	2,289,569
Chip & Filler Board	3,536	4,067	237,500
Total Containerboard	151,041	154,882	7,719,523
Folding	50,843	54,009	2,662,605
Set-Up	12,044	9,962	571,542
Special Food Board	24,933	24,115	1,336,695
Other	57,068	67,885	2,654,692
Total Boxboard	144,888	156,971	7,225,534
Total Orders			
Received	338,553	275,752	
Unfilled End of Week	476,497	438,833	

*Includes Thanksgiving Day.



Fast Signode way to strap paper skids

Strapping paper skids is fast and easy with a setup like this. The bridge crane gives mobility to the strapping equipment and obstruction-free working space on the floor. Signode's AP-34 air-powered strapping machine applies strap almost effortlessly, in seconds. This Signode design setup makes skid strapping a much more efficient and easy operation. It saves important time and frees valuable floor space. A Signode engineering consultant will be glad to work with you to develop complete strapping stations in your plant, tailored to your needs. Let him help you save time and money now. Write:

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Offices Coast to Coast. Foreign Subsidiaries and Distributors World-Wide

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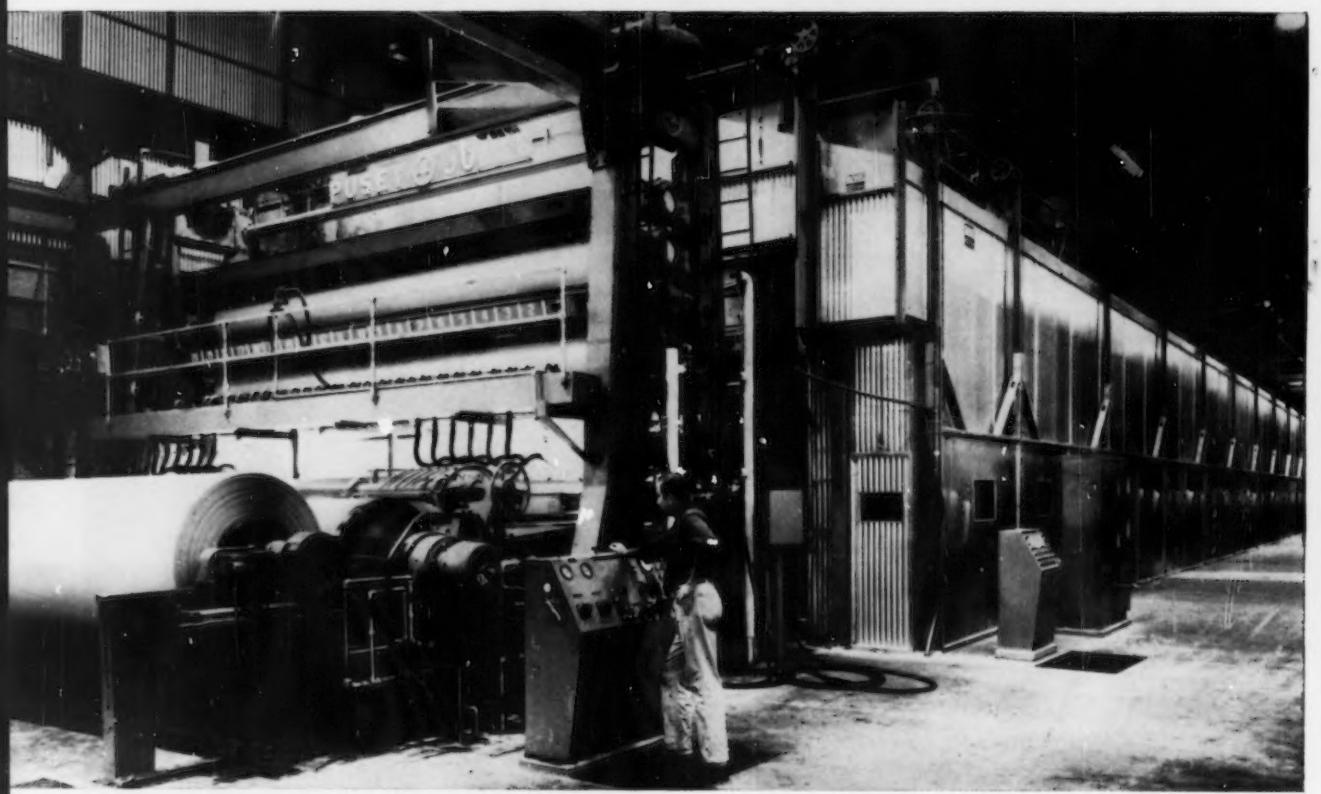
First in steel strapping

PRODUCTS SYSTEM ENGINEERED VALUE IN USE

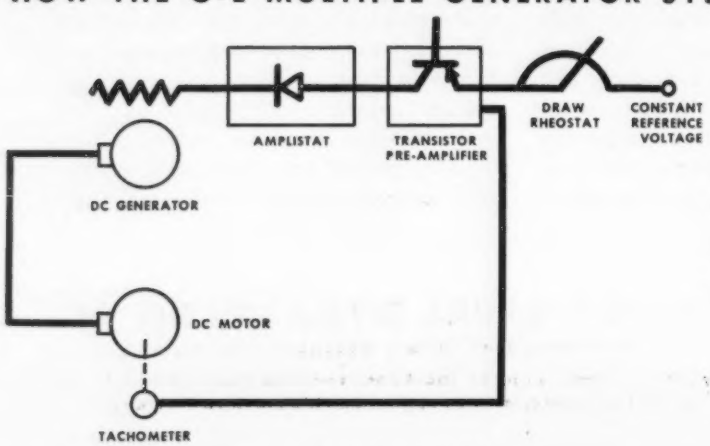
Southland Paper



DESIGNED FOR NEWSPRINT PRODUCTION AT 2500 FPM, Southland's new No. 4 paper machine was built by Pusey and Jones Corporation, powered by a General Electric multiple-generator sectional drive. The new machine, 270 inches in width, uses 14 G-E drive motors totalling more than 3000 horsepower.

GENERAL ELECTRIC DRIVES ARE SYSTEM ENGINEERED

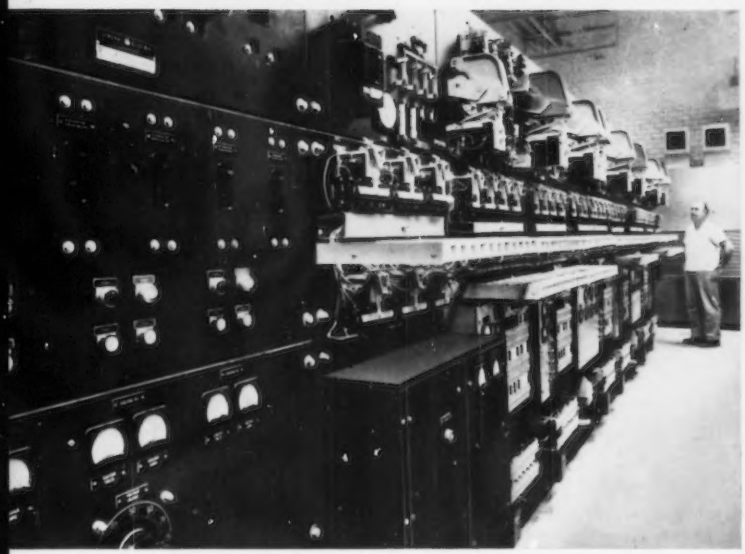
HOW THE G-E MULTIPLE GENERATOR SYSTEM WORKS



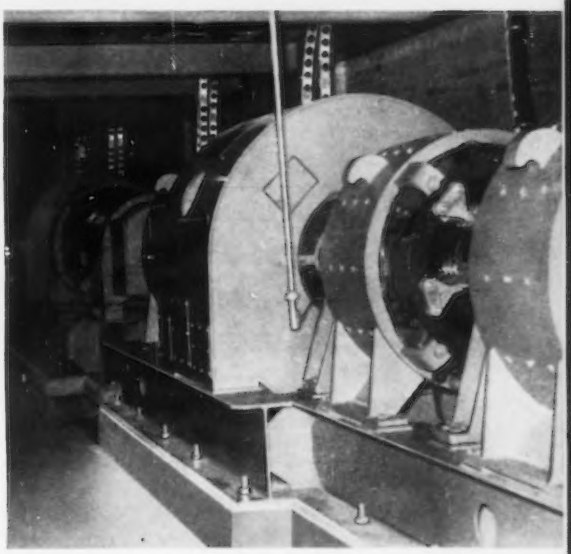
Each section motor operates on generator voltage control. The motor speed is measured by a tachometer, whose output voltage is compared with the over-all machine's constant reference voltage. With even the slightest difference between the two voltages, the transistorized preamplifier responds instantly through an amplistat regulator to change the generator voltage, maintaining the exact desired motor speed.

specified General Electric Drive featuring new transistor amplistat

HERE'S WHY . . . • Improves machine availability
• Maximum machine flexibility
• Reduces electrical maintenance



G-E STATIC SPEED REGULATOR provides high accuracy, fast response control. Amplistat power amplifier and completely sealed transistor pre-amplifier give long-life, trouble-free operation and reduce costly unscheduled downtime.



DEPENDABLE POWER is supplied by two G-E MG sets, each driven by a 1500-hp synchronous motor. Separate generator for each section adds flexibility and simplifies maintenance.

FOR ALL PAPER MAKING APPLICATIONS

Southland Paper Mills' new No. 4 paper machine at their Lufkin, Texas mill, powered by a General Electric multiple-generator sectional drive, presents a major advance in drive systems for the paper industry.

New technology, such as use of transistors and magnetic amplifiers in the G-E static speed control, provides trouble-free, reliable operation to increase machine availability and reduce maintenance time and expense. Result: *greater output.*

Co-ordination of the equipment into a flexible, easy-to-expand electrical system resulted from close co-operation between Southland engineers and General Electric application and service engineers.

General Electric engineering services also can help you design, equip and install a well-integrated electrical system suited to your specific needs. For more information on paper-mill drives, call your nearest General Electric Apparatus Sales Office or write to General Electric Co., Section 655-23A, Schenectady 5, N. Y.

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Modern Methods of Mechanical Pulp Manufacture

This book comprehensively covers all aspects of groundwood pulp production. The author, K. H. Klemm, has a broad knowledge of groundwood manufacturing methods and has been associated with groundwood mills on both sides of the Atlantic. Price: $5.00.

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	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$ 82.50/ 90.00	$ 82.50/ 90.00	§$90.00/ —	§$80.00/ —	§$90.00/ —
Bleached Gw'd	$ 97.50/100.00	$ 97.50/100.00			
Kraft, Blchd.	157.00/ —	160.00/162.50	§157.00/162.50*		§157.50/ —
Kraft, Blchd. Hdwd.	152.00/ —		§137.00/ —		
Kraft, Semi-bleached.	140.00/ —	140.00/ —			
Kraft, Unbl.	117.50/125.00	125.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd.	155.00/ —	155.00/ —	*155.00/ —	*165.00/ —	155.00/ —
Sulphite, Bl. Hdwd. .	150.00/ —				
Sulphite, Unblchd ...	135.00/ —	135.00/ —	†135.00/ —	*135.00/ —	
Sulphite, Unb'l. Gl'sn		140.00/ —	†134.00/ —		
Soda, Blchd.	147.00/150.00	160.00/ —			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances.

COTTON LINTERS

F.O.B. OIL MILLS
WEEK ENDED DECEMBER 8

	Atlanta	Memphis	Dallas	Los Angeles
Grade 1	n.a.	n.a.	n.a.	n.a.
2	n.a.	n.a.	$7.50/ —	8.50/ —
3	$7.00/6.00	$8.00/7.00	7.00/6.50	8.00/ —
4	6.00/5.25	6.25/5.75	6.25/5.25	7.50/6.50
5	5.25/4.75	5.00/4.75	4.75/4.50	7.00/6.00
6	4.75/3.50	4.60/4.25	4.00/3.25	5.00/3.75
7	3.50/2.50	3.50/2.75	3.00/2.50	n.a.

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers and brokers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	Dec. 14	Dec. 14	Dec.	Dec.
No. 1 Mixed Paper	$ 10.00/ 12.00	12.00/ 14.00	9.00/ —	13.00/ 14.00
No. 1 News	14.00/ 15.00	14.00/ 15.00	16.00/ —	16.00/ 15.00
Overissue News (Lg. size)	13.00/ 15.00	13.00/ 15.00	21.00/ —	19.00/ 20.00
Mill Wrappers	19.00/ 22.00	13.00/ 15.00	14.00/ —	15.00/ —
Old Corrugated Containers	24.00/ 25.00	23.50/ 24.00	21.00/ —	23.00/ —
Super Resorted Kraft Paper	35.00/ 40.00	— / —	30.00/ —	55.00/ —
New Double Kr. Ld. Corr. Cuts	32.50/ 35.00	35.00/ —	32.50/ —	35.00/ —
(Semi-chem. medium)	45.00/ —	45.00/ —	42.50/ —	38.00/ —
New 100% Kraft Corr. Cuts	40.00/ 42.50	— / —	57.50/ —	— / —
New Br. Kraft, Env. Cuts	70.00/ 75.00	70.00/ 75.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Prntd.	55.00/ 60.00	55.00/ 60.00	52.50/ —	55.00/ —
New Br. Kr. Bag Waste Unprintd ..	60.00/ 65.00	65.00/ 75.00	60.00/ —	60.00/ —
No. 1 Groundwood Shvs.	25.00/ 30.00	25.00/ 30.00	24.00/ —	35.00/ —
White Newsblanks	65.00/ 70.00	53.50/ 60.00	45.00/ —	60.00/ —
No. 1 Soft White Shvs.	60.00/ 65.00	60.00/ 65.00	60.00/ —	70.00/ —
Super Soft White Shvs.	65.00/ 75.00	75.00/ 85.00	70.00/ —	— / —
Hd. White Shvs.	85.00/ 90.00	90.00/100.00	85.00/ —	95.00/ —
Hd. White Env. Cuts	100.00/105.00	105.00/110.00	90.00/ —	113.00/ —
Col. Tab. Cards	55.00/ 57.50	55.00/ 57.50	52.50/ —	42.50/ 45.00
Manila Tab. Cards	75.00/77.50	75.00/77.50	75.00/ —	70.00/ —
No. 1 Col. Ledger	40.00/ 45.00	37.50/ 42.50	45.00/ —	31.00/ —
White Ledger	60.00/ 62.50	60.00/ 65.00	55.00/ —	55.00/ —
Mixed Book & Mag.†	22.00/ 25.00	— / —	15.00/ —	— / —
No. 1 Books‡	22.00/ 24.50	17.00/ 19.00	32.50/ —	17.50/ 19.50

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

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UNITANE

Titanium Dioxide

PUTS WHITENESS UP WHERE IT OUGHT TO BE!

In paper boxboard for cartons, Unitane O-110 Titanium Dioxide provides the whiteness that builds sales for products of all kinds. The attraction of added brightness and the look of extra cleanness do the trick! Ask your Cyanamid Pigments representative about Unitane O-110.

CYANAMID

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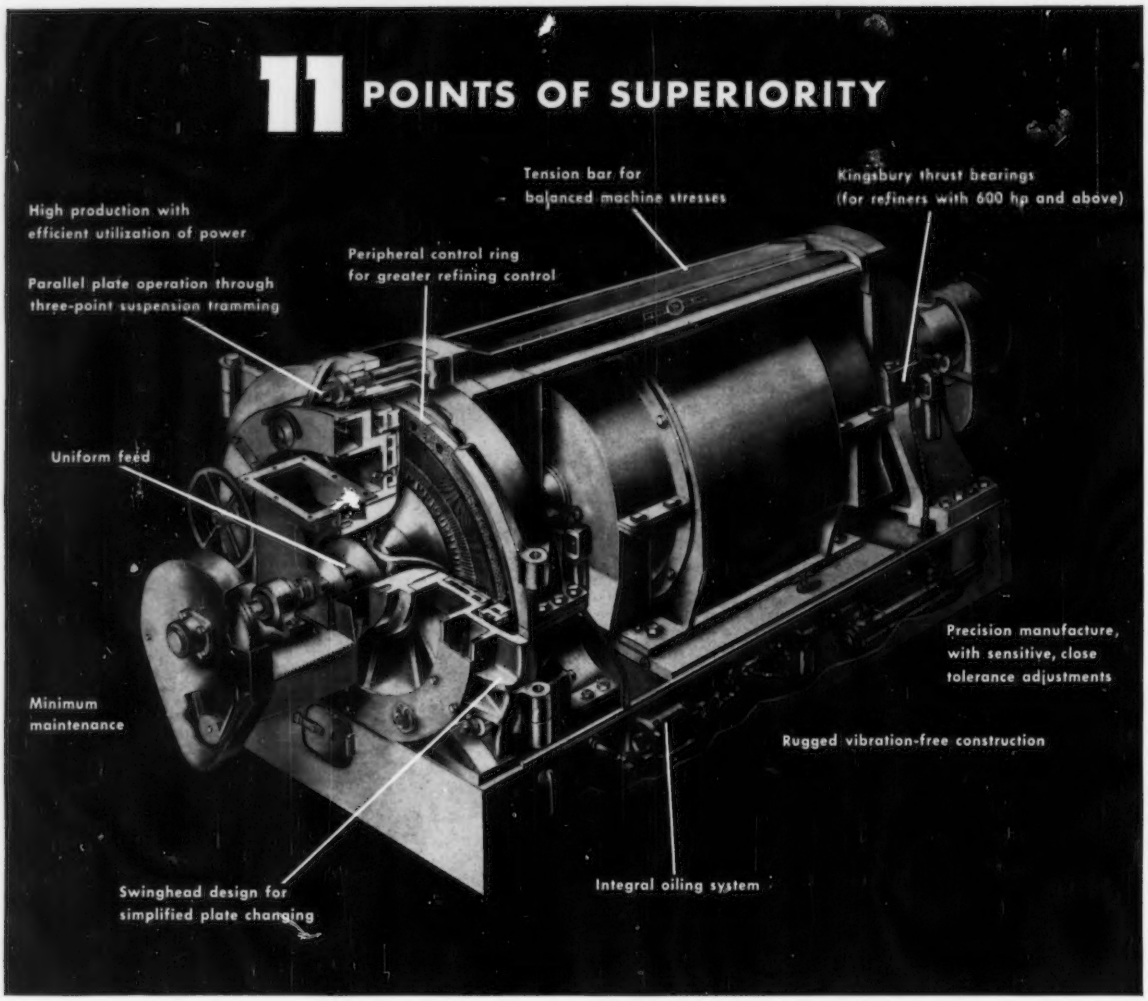
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High production with efficient utilization of power
Peripheral control ring for greater refining control
Parallel plate operation through three-point suspension tramming
Uniform feed
Precision manufacture, with sensitive, close tolerance adjustments
Minimum maintenance
Rugged vibration-free construction
Swinghead design for simplified plate changing
Integral oiling system

THE WORLD-FAMOUS 36-2 "SPROUT"

single disc precision pulp refiner

The 36-2 Sprout refiner is the most efficient disc refiner in quantity of output and in quality of refined pulp per horsepower input. It is preferred throughout the industry for every pulping application where rubbing and brushing action, without cutting, is required. Sprout-Waldron units lead the field in the refining of semichemical pulp, cold caustic pulp, screen rejects, wastepaper stock; brown stock and hot stock refining of high yield kraft pulp; refining of bagasse, flax and straw pulping; as well as preparation of insulation and hardboard fiber. For the latest details on the 36-2 Sprout, request Bulletin 96-B.

SPROUT, WALDRON & CO., INC.

MUNCY, PENNSYLVANIA, U. S. A.

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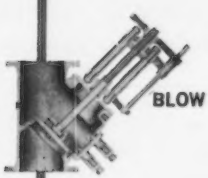

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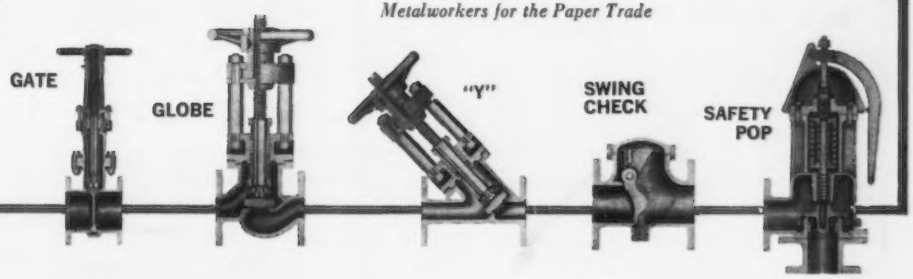
Subsidiary of **NATIONAL LEAD COMPANY**

Fitchburg, Massachusetts

Metalworkers for the Paper Trade



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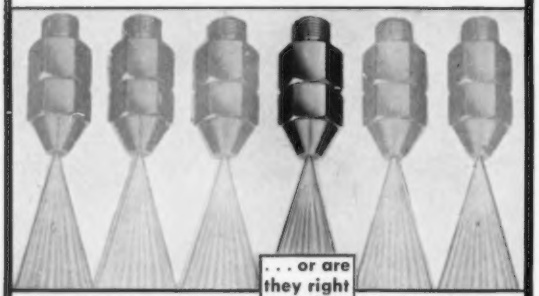

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D-28

Help Wanted Advertisements continued on page 54

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1—51" 3-color Flexo Press
1—50" 1-color Tailprinter
1—48" 4-color Cottrell Heinrich Press, 3—Flexo, 1—Gravure
1—41" 4-color Wolverine Hydro-Printer
1—33" 6 color Modern Clipper Flexo Press
1—33" 4 color Wolverine Hydro-Printer
1—32" 4-color Schmutz Bag Press
1—31½" 4-color W. & H. Roll to Roll Flexo Press
1—24" 5-color Kidder Celloprinter
1—24" 4 color Kohlbach Flexo Press
1—24" 3-color Potdevin Flexo Press
1—18" 2-color Potdevin Oil Ink Roll to Roll Press
1—9" x 12" New Era 2-1 with Togglehead

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Seybolds: Dayton: 35", 56" & 64"; 20th Century: 64", 54" & 38"; Holyoke: 55"; 12Z: 85"; 10Z: 65", 50", 44"; 7Y: 34"; 3Y: 32"; Oswegos: 36"; Dexter: 50", 44" & 32"; C & P: 44"; National: 44".
1—84" Seybold Dayton

CAMACHINES

108" & 160" Type 18.
1—82" 10-10
1—72" 10-11
1—72" Shear Cut, Type 10-04-3, 40" rewind
1—62" 40-1-AF
1—62" Type 42, for small rolls
1—52", & 1—42" Model 24-7.
1—42", 50" & 62" Type 6
1—55" & 1—65" Type 10

OTHER SLITTERS

1—106" Langston (60" Diameter Rewind)
1—82" Langston Type B
1—60" S & R (Similar Kidder Model C.W.)
1—60" Langston Type A
1—60" Inman With Reeves Drive
1—52" Meisel (Shear-Cut)
1—50" & 1—60" Knowlton Board Slitter (Heavy Duty)
1—50" Kidder Mod. SLN Shear-cut
1—40" Langston "Type A" (Shear-Cut)
1—36" Kidder SLN (Shear Cut) Fully equipped for converting adding machine & teletype rolls.
1—31½" Beck Razor Blade Slitter
2—24", 1—30", 1—36" & 1—40" Kidder S.L. Shear cut

MISCELLANEOUS MACHINES

1—24" Schultz Automatic Rewinder
1—55" Beck CCSH A-5 Angle Sheeter
1—45" CSH Beck Sheeter, Jogger Delivery
1—36" Model CSHD Beck
1—36", 45" and 1—55" Globe sheeters
1—112" Model 29 Heavy Duty Roller Bearing Single Hamblet Sheeter, with layboy and backstands.
Hamblet Sheeters—32", 44", 48", 64", 104"
1—Beasley French Bag Machine.
1—Potdevin Model 110-L Cello Bag Machine
2—Potdevin (Model 111-S) F & S Cello Bag Machine, Electric Eye
1—Matador Model #100 Bag Machine
1—Model-C Cellophane Roto Bag Machine
1—Potdevin #103 F&S Bag Mch.
1—Weber Model "CN" Cellophane Satchel Bottom Bag Machine
1—Satchel Bottom Flour Bag Machine Tuber & Bottomer
1—Poly Garment Bag Machine
2—Smith & Winchester Tubers
1—V-Shape 6 oz. Paper Cup Machine
1—Mercury Hot Paper Cut Machine
3—Seybold: 4—Post Die Presses 2—38" x 24", 48" x 31" & 59" x 32"
3—Sheridans: 66" x 44", 60" x 30" & 44" x 22" & 1—Ford-Smith: 48" x 40"
1—40½ Hudson Sharp Interfold Toilet Tissue Machine
1—27" x 44" Dietz Single-Fold Towel Interfolder
1—New Hudson Sharp No. 10-T Rotary Towel Interfolder
1—Hudson-Sharp C-Fold Towel Machine
1—Morpac Packaging Machine max. length 15", max. height 5"

D-21

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Manufacturer of stock preparation and pulp mill equipment needs M.E. with paper making background. Should know mill applications and problems. Language (Fr., Ger., Sp.) desirable but not essential. Some foreign travel. Salary open.

Send complete resume to:

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FOURDRINIER: Manufactured by Pusey and Jones with 108½" wide x 60' 2¾" long wire. Ruler deckles and 6 suction boxes. Brass wire rolls, Sandy Hill shake. 26" D. Downington suction Couch Roll. The Couch Drive consists of a Downington Spiral gear roller bearing unit with cone pulley and disc clutch. 10" D. Dandy Roll.

HEADBOX: Cypress with stainless steel adjustable slice with stainless steel pond sides.

PRESSES: The Press Section consists of a straight through First Press and a reverse Second Press followed by a Smoothing Press.

DRYERS: Dryer Section consists of 30-48" x 108" face dryers, plain bearings with open gears; dryer control; steam header, piping from header to dryers and steam joints.

CALENDERS: The First Calender Stack is an 8 roll Pusey and Jones with 18" D. King Roll, with 16" Queen roll and 10" Intermediate rolls. Top roll is 12" diameter.

The Finishing Stack is by Farrell with 24" D. King roll, 18" D. Queen roll and a 10½" D. Intermediates.

These stacks are complete with bearings, all of which are water cooled. The Finishing Stack is equipped with 2 water boxes. There is a complete set of doctors for each stack.

REEL: The reel is a 2 roll stack reel by Black and Clawson.

WINDER: The Winder is a No. 18 Cammachine with 14" D. by 115" face drums, complete with rider roll and slitters.

COMPLETE WITH DRIVES:

This machine was operating until a short time ago on specialties at a speed of 400 to 500 feet. The machine is all set up and can be inspected.

This machine is worth more than $175,000.00 if it was split up and the machinery was sold separately. However, as we have to move it within three months, we are offering one of the greatest bargains in a paper machine complete at a low price of $97,500.00. Also, included with the above machine are thousands of dollars worth of spare parts.

WRITE—WIRE—PHONE FOR YOUR NEEDS

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GOUVERNEUR, NEW YORK
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Help Wanted Advertisements continued on page 56

FOR SALE

BARKING DRUM
1—12 ft. diameter x 45 ft. long

BEATERS
2—1500 lb. rag beaters, Valley Iron, bandless rolls, 54" x 48", cast iron tube

CALENDER STACKS
1—3 roll 84" calender stack.
1—4 roll 72" Calender Stack. (Extra heavy duty).
1—5 roll 82" face.
1—5 roll 86".
1—7 roll, 84" face.

CHIPPERS
1—96" Murray 4 knife Chipper—anti-friction bearings
1—84" 10 knife Carthage Chipper. Anti-friction bearings, with motor.
24—Chipper Knives 15⅞ x 8¼, 2 slot.

COATER
1—42" Extruder Coater, new

CRUSHER & HAMMERMILL
1—Murray Chip Crusher.
1—Williams Hammermill
1—Jeffrey Shredder

CYLINDER MOLDS
1—30" diameter x 72" face.
5—36" diameter x 75" face, with couch rolls
1—36" diameter x 82" face
3—36" diameter x 90" face, 18" diameter couch rolls.
2—36" diameter x 100" face, anti friction bearings
3—42" diameter x 106" face
2—60" diameter x 170" face

DIGESTERS
1—10' high x 5' dia. High pressure vertical digester.

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1—Shartle 8" disintegrator (new) with 125 horsepower induction motor. (totally enclosed)

DRIVES
1—#6 Reeves vertical—anti friction bearings, totally enclosed.
1—Jones 21 H.P., ratio 10 to 1 (enclosed angle drive)
1—#4 Reeves Drive
2—Waterbury Hydraulic Variable speed line shaft drives (from 40 to 100 H.P.)
1—5 H.P. Reliance Drive, complete with starting equipment, like new.
1—Agitator drive
1—400 h.p.—Westinghouse Drive

DRYERS
1—16" diameter x 54" face (steel)
4—24" diameter x 80" face, Lukens High Pressure Dryers, anti friction bearings.
1—28" diameter x 84" face
2—28" diameter x 40" face with bearings
2—30" diameter x 48" face with bearings.
2—Calender Dryers, bronze, 30" x 128" with frames, gears & necessary rolls to make up the unit
1—36" diameter x 44" face
4—36" diameter x 76" face
5—36" diameter x 84" face and gears
20—48" diameter x 48" face with bearings.
2—48" dia. x 52" face with frames, gears, bearings
2—48" x 60" face with frames, gears and bearings
1—48" x 96" face
2—48" x 108" face, with bearings and gears, 125 lb. pressure
6—48" diameter x 130" face.
32—60" dia. x 157" face, complete with frames, gears, bearings.

EMBOSSING CALENDERS
1—43" 3-roll Embossing Calender
1—51½" 3-roll Smoothing Calender
1—57" 3-roll Embossing Calender
1—62" 2-roll Embosser
1—90" 2-roll Smoothing Calender

FILTER
1—Dorr-Oliver Filter, 3 ft. dia. x 6 ft. face, stainless steel construction, with pump.

FLAT SCREENS
1—8 Plate "Packer"
1—12 Plate "Packer"

FRAMES
Beloit Heavy Duty Dryer Frames for 100 Dryers (42" Dia.) 4 Stack. Immediate Delivery.

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HOGS
2—Mitts Merrill Type 15 C.F.

JORDANS
1—Jones Standard, new spare tackle, with 75 h.p. motor
1—Noble & Wood Mammoth Senior, anti friction bearings

LABORATORY EQUIPMENT
1—4" face x 36" diameter Saveall
1—12" x 12" Sheet Mold
1—Washer for 5 lb. Beater
1—24" Saveall, stainless steel
1—20" Fourdrinier Wet End & Press Section
1—Bauer-McNett Fibre Classifier
2—8" x 8" Valley Sheet dryers
1—12" x 12" Valley Sheet dryer
1—Experimental Digester (High Pressure)
1—5 lb. Valley Beater.
1—15 lb. E. D. Jones Beater
1—8" x 8" Valley Hydraulic Press
1—Williams Freeness Tester, with Timer
1—Greene Freeness Tester
2—Cady Micrometers
1—High speed Jordan, anti friction bearings
1—Noble & Wood Baby Jordan, anti friction bearings, new 1957, with motor
7—Mullen Testers
1—Williams Centrifuge, motorized

LAMINATING MACHINES
2—84" Asphalt laminators.

LOG SPLITTER
1—Carthage 4-way Hydraulic Log Splitter

MISCELLANEOUS
1—#1 Miami Selectrap

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1—60 h.p. upright induction motor.
1—30 h.p. upright induction motor
4—25 h.p. Westinghouse, totally enclosed, ball bearings, 705 r.p.m.

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2—Chilled iron, chrome plated 9" x 72"
1—Chilled iron, chrome plated 12" x 100"
1—Chilled iron, chrome plated 10" x 74"

PUMPS
1—Economy Fan Pump, 6000 g.p.m., 20' head, 50 h.p. motor.
1—Morris-10,000 g.p.m. 25 ft. head (all bronze)

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1—72" Downingtown Reel, 2 bowl.
1—84" 3 bowl revolving reel.
1—86" 2 bowl reel.
1—100" Rice Barton 2 bowl Reel, heavy duty.
1—123" 3 bowl Revolving Reel
1—134" 2 drum
1—200" Beloit Pope Reel, 72" finished roll

REFINERS
1—Sprout, Waldron Refiner, with 450 h.p. motor
1—Rice Barton Dyntofiner, details on request.
1—12" Wiener Refiner, with 200 h.p. motor
1—double disc Bauer Refiner, with 2-150 h.p. motors
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Felt, Table, Press, Breast, Couch, etc. Various sizes and types. (Bronze, Rubber, Iron, etc.)

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4—#2A Bird Rotary Screen, copper vats.
7—Trimbey, Senior Knotter Screens
1—#2A-50 Bird, copper vat
2—APMEW Rotary Pulp Screens.

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1—24" Continuous Saveall, stainless steel
1—LaMorte, 48" diameter x 82" face cylinder mold.
2—Savealls, cylinder molds, 42" diameter x 106" face, brand new vats.
2—Savealls, Rice Barton, cast iron vats, cylinder molds 42" diameter x 128" face, complete with 18" diameter couch rolls, all in very good condition.

SCREEN PLATES
Bird Rotary screen plates.

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1—44" Spot Sheeter Complete
1—60" Hamblet with layboy
1—84" Hamblet, duplex, back stands
1—132" Hamblet heavy duty duplex sheeter, anti-friction bearings throughout, including layboy and backstand.

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1—16" "Swift" Paper Shredder

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2—26" Cameron Type 9
5—42" Cameron Type 6
1—42" Cameron Type 40-2
3—50" Cameron Type 6
3—52" Cameron Type 9.
1—56" Cameron Type 26-3A
1—86" Two Drum Moore & White 50" diameter rewind.
1—96" 4 drum Moore & White winder
1—102" Cameron Type 18, 60" diameter
1—122" Cameron Type 18, 60" diameter, anti-friction bearings
1—64" Waldron, shear cut

SLITTING DEVICE
84" Quick change slitting device shear cut, complete, practically new.

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1—10 x 20 Shartle Triplex

SUCTION COUCH SHELL
1—Downingtown suction couch shell only, 127½" face 26" diameter

SUCTION COUCH ROLL
1—Beloit, 36" diameter x 246" face, SKF bearings.

SUCTION FELT ROLLS
1—Gilbert & Nash 122" face

SUCTION PRESS SHELL
1—14" diameter x 100" drilled face, suction Press Shell only.

SUPER CALENDER STACK
1—9 Roll 56"

TABLE ROLLS
22—Rubber Covered 10" diameter x 246" face
30—4" dia. x 130" face (will cut to size)
50—3½" diameter x 130" face, brass covered

THICKENERS
2—Iron End Vats with 36" diameter x 84" face Cylinder Molds and 20" diameter couch rolls, including spare cylinder mold and spare couch roll, all anti friction bearing equipped.

TOILET WINDERS
2—72" Hudson-Sharp (Surface type winder)

TRIMMERS
1—84" Seybold
1—36" Oswego

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3—#1 Nash Hytor vacuum pumps
2—#3 Nash Hytor
1—#4 Nash, with motor
3—#6 Nash Hytor (Bronze)
1—#7 Nash Hytor vacuum pump with 75 h.p. synchronous motor.
1—H-3 Nash Vacuum Pump
3—L-4 Nash vacuum pumps
5—L-5 Nash Vacuum Pumps
2—Connersville, 14 x 20

VATS
2—D. J. Murray Co. Vats, iron ends, for 42" x 120" cylinder molds, overflow and counterflow.
2—Brand new Downingtown Iron End Vats, copper lined, for 42" diameter x 112" face cylinder molds. Will cut down to your size.

VATS AND MOULDS
5—Stainless Steel Vats, with 36" Dia. x 100" Face Cylinder Moulds, anti-friction bearings, 2 Spare Cylinder Moulds, all in excellent condition.

VIBRATING SCREENS
1—Hummer electric Vibrating Screen, stainless steel
1—Selectro 2 stage, 5 ft. x 10 ft.

WET END
1—Complete 2 cylinder Rice Barton, 128" trim

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1—72" Rogers Wet Machine
1—84" Kamyr Complete Wet machine

YANKEE DRYER
1—12 ft. diameter x 181½" face

Paddy Ross, Pres. **J. J. ROSS COMPANY** Ben Kurs, Treas.
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Small, well established specialty kraft paper mill has excellent opening for thoroughly experienced practical kraft paper maker. Must know all phases of fourdrinier machine operation from beater room to finished product.

A qualified young man can look forward to a career with excellent potential for later promotion.

Salary about $8,000

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Recent Ph.D. or M.S. in Chemical Engineering. Limited amount of teaching. Very active research and graduate student program. Expected to develop own research program. Prefer man interested in Pulp and Paper Technology. Applicants should submit resume of experience and official documents attesting to academic qualifications. Also the names of three references. Address letters to: Chairman, Department of Pulp and Paper Technology, State University College of Forestry at Syracuse University, Syracuse 10, New York.

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Experienced paper maker. Extensive experience in the manufacture of folding, setup and pat. coated board. Familiar and capable of solving all problems that arise in manufacturing of board, power and maintenance. Presently employed. Box 59-346 Care Paper Trade Journal. D-28

Situations Wanted

AVAILABLE MILL MANAGER

Experienced in manufacture of Writing, Printing and Specialty Grades; also Pulps.

Will take complete charge of mill and operate at a profit.

Over 20 years of experience. Address Box 59-333 care Paper Trade Journal.

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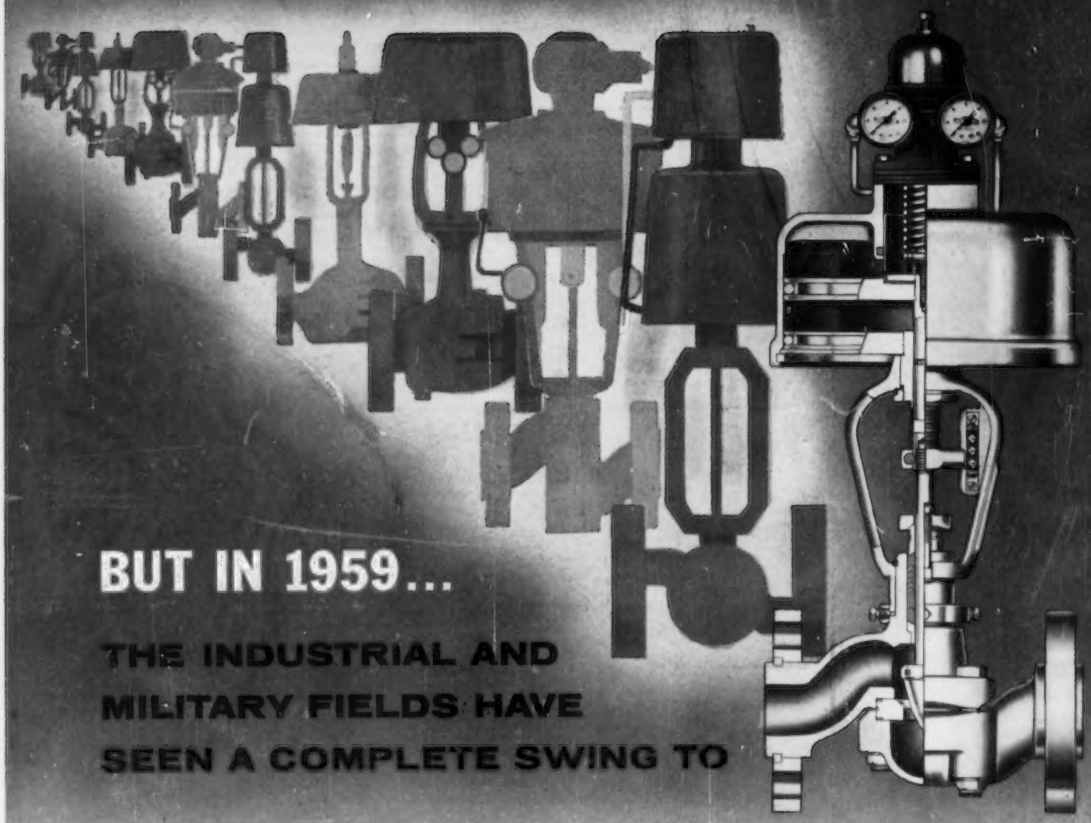

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